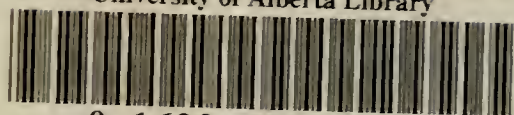


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COVERS:

Front - Adult Cattle Egret standing above a nest containing two large juveniles at a new breeding colony at the Plum Lakes in southwest Manitoba, 1 September 2005. Note orange-buff breeding plumage on breast and head of adult. See article on page 126. Photograph by Ron Bazin

Back - American Kestrel pair at nest box in the spring of 2004 at Morse, SK. See note on page 172. Photograph by Randy McCulloch

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FIRST DOCUMENTED BREEDING RECORDS OF CATTLE EGRETS IN MANITOBA

RON BAZIN, Canadian Wildlife Service, 150 – 123 Main Street, Winnipeg, MB, R3C 4W2, E-mail: ron.bazin@ec.gc.ca



Adult Cattle Egret flying over the Plum Lakes colony, 1 September 2005.

Ron Bazin

The Cattle Egret is an Old World species that exhibits strong dispersal tendencies.¹ This extensive wandering behaviour, which is common in many heron species, has resulted in a well-documented, nearly worldwide range expansion for the species, which presently occupies every continent except Antarctica.¹² Within each continent, its range is nonetheless confined mostly to tropical and temperate zones, avoiding areas with extreme climates.¹²

On the North American continent, the Cattle Egret was first observed in southern Florida in 1941, officially

documented with photographs in 1952 and found nesting the following year.¹² In the fall of 1952, the first reported Cattle Egret in Canada was seen off the Grand Banks of Newfoundland.⁴ In just over 50 years, Cattle Egrets have spread out over most of North America, with confirmed sightings in all but two of the contiguous U.S. states, and in all Canadian provinces and the Northwest Territories.^{7, 12}

Manitoba recorded its first sighting in May 1961, between Alexander and Griswold.⁹ Cattle Egrets were subsequently observed with increasing regularity through the

second half of the 1970s. Observations decreased sharply during the 1980s and early 1990s, but greater numbers were observed in the late 1990s and increasingly up to 2005, a year of unprecedented record counts of 315 birds in the Maple Lake–Oak Lake area, 292 at Whitewater Lake, and an estimated provincial total of up to 1000 birds.^{6, 8}

With such high numbers in recent years in Manitoba, breeding was strongly suspected, particularly at Whitewater Lake where, in 2003, birds were seen carrying nesting material, and where a colony was apparently observed but not reported (C. Meuckon, 27 June 2006, pers. comm.).⁵ Previously breeding had only been confirmed in two provinces – Ontario (1962) and Saskatchewan (1981).^{3, 11} With the current breeding records reported in this paper, Manitoba becomes the third province

in Canada to officially document nesting Cattle Egrets.

In late summer of 2005, I was alerted by Canadian Wildlife Service (CWS) staff to a possible egret colony at the Plum Lakes, just south of Oak Lake. On 1 September 2005, I visited the area by airboat with other CWS staff and confirmed that it was indeed a successful Cattle Egret colony, within which Black-crowned Night-Herons were also nesting. Cattle Egrets commonly nest within multi-species heron colonies, and may possibly follow individuals of other species to new breeding areas.^{2, 3, 10-12} Throughout the colony, juvenile Cattle Egrets were observed at various stages of development, from completely down covered to near fledging, with the latter birds comprising the majority of the young observed. There were, on average, 2-3 young seen per nest.



Small portion of the Cattle Egret colony at the Plum Lakes, 1 September 2005. Note that Cattle Egrets are nesting within the Reed Grass area, which is surrounded by an extensive cattail stand.

Ron Bazin

The colony was in a moderately dense stand of primarily dead Reed Grass (*Phragmites australis*), 100 ± 5 cm in height above the water. The Reed Grass stand was completely surrounded by a very dense and extensive stand of even higher cattail (*Typha* sp.), which formed a barrier that was difficult to penetrate, undoubtedly affording some protection for the colony. Very similar habitat characteristics were observed at a colony on the J. Clark Salyer National Wildlife Refuge in North Dakota in 1972, approximately 120 km south of the present colony.²

Nests were constructed primarily of dead Reed Grass stalks and were supported on dead stem growth approximately 75 cm above the water. The average water depth at the colony site was 56 ± 6 cm. Cattle Egret and Black-crowned Night-Heron nests were intermixed within those areas of the colony that were observed and collectively formed a moderately dense nesting arrangement. A Global Positioning System unit was used to mark the outline of the colony and measure its total area, which was calculated to be approximately 4000 m². After taking measurements and photos, we retreated from the colony to avoid further disturbance.

On 30 September 2005, I returned to the colony to obtain a nest density estimate. Approximately 20 Cattle Egrets were present at the colony, but all left upon my arrival. The greatest difficulty was attempting to differentiate between Cattle Egret and Black-crowned Night-Heron nests. In general, based on carcasses of juvenile birds still present in the nests, Cattle Egret nests appeared to be built much higher above the water than those of Black-crowned Night-Herons, a phenomenon I also observed in other

Cattle Egret colonies in the summer of 2006. There is, however, great variability in both nest site selection and construction for these two species, with little information in the literature to differentiate between nest types, so this method of nest differentiation is by no means certain. Within a 600 m² plot established on the west end of the colony, I counted a total of 112 nests of which 85 were presumed to belong to Cattle Egrets, giving a nest density of 0.14 nests/m². This is very close to a minimum nest density estimate of 0.12 nests/m² for a colony in Texas.¹² Assuming an even distribution of nests throughout the colony, this would result in an estimate of 560 Cattle Egret nests.

It is difficult to determine how accurate this estimate might be, given the uncertainty in differentiating between nests of the two species (some nests counted as Cattle Egret nests could have actually been Black-crowned Night-Heron nests). However observations made during the first visit did indicate predominantly "white" birds in all those areas where visual observations were made. As well, it is unknown whether the nest density obtained within the sample plot is representative of the entire colony. Although the actual number of Cattle Egret nests will never be known, it is safe to say that given the unprecedented numbers observed in the Maple Lake – Oak Lake area, Cattle Egret nests likely numbered in the hundreds within this first documented breeding colony.

The Cattle Egret colony at the Plum Lakes was visited on 6 July 2006 and found to be active again. This time the colony site consisted primarily of dense, live Reed Grass, precluding any larger scale view of adults on nests. Two nests were, however,



Downy Cattle Egret chicks with two unhatched eggs at a new colony at the Plum Lakes in southwest Manitoba, 1 September 2005.
Ron Bazin

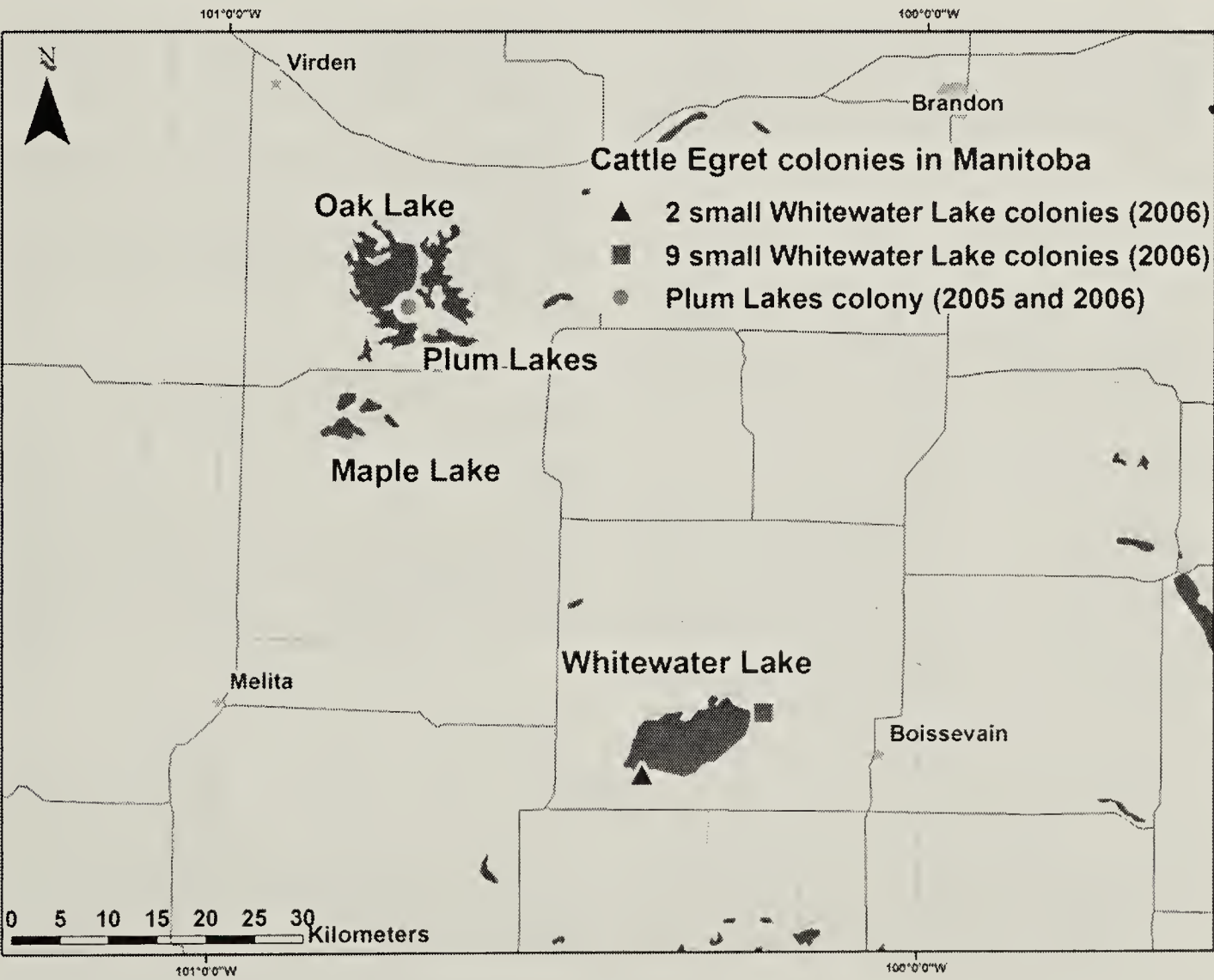


Figure 1. Cattle Egret colonies in Manitoba.

observed from the airboat at the edge of the colony, and approximately 75 adult Cattle Egrets flew from the colony upon our arrival. In addition to this colony, a total of 11 separate small colonies, ranging from two to 14 birds, were observed on 4 July 2006 at Whitewater Lake, approximately 55 km southwest of the Plum Lakes. These small colonies were located at the west (two colonies) and east (six colonies) ends of the lake, and in the adjacent impoundment (three colonies), and were all associated with nesting Black-crowned Night-Herons (Figure 1). Approximately 66 Cattle Egrets were observed within the eight colonies in the lake area. The three colonies in the impoundment area were reported to, but not visited by, the author, without any additional information on size or numbers.

Future searches for Cattle Egret breeding colonies should focus on those areas where existing heron colonies, particular Black-crowned Night-Heron colonies, occur close to moist, moderately grazed pastures. Aerial photography could potentially be used during the late incubation/early hatching stage on larger colonies to obtain more reliable nest count estimates within a colony.

Acknowledgements

The author would like to thank Marc Schuster for information concerning the existence of the colony, Laura Beaudoin and Nathan Wiebe for assistance in the field, and Paul

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"Barred Owl: Who cooks for you, who cooks for you all-I-I?; Warbling Vireo: When I sees one I shall seize one and I'll squeeze it 'till it SQUIRTS!"; American Goldfinch: Potato-chip, potato-chip."
 Scott Weidensaul, *The Birder's Miscellany*, p. 118

RING-BILLED GULLS Banded IN SASKATCHEWAN, 1936-1989

C. STUART HOUSTON and MARY I. HOUSTON, 863 University Drive, Saskatoon, SK S7N 0J8. E-mail: houstons@duke.usask.ca

Between 1936 and 1989, 23,866 Ring-billed Gulls were banded in Saskatchewan by four banders. There were 538 recoveries or 2.3% (including a minimum of 29 encounters, see Table 2) We studied this data set to learn what it might reveal about causes of death, migration routes, speed of travel, delineation of wintering grounds, natal dispersal, and longevity.

Methods

Banders and locations of banding: A printout of Saskatchewan banding records since 1955 was received from the banding office. Pre-1955 banding totals have not been computerized for non-game species, but we obtained copies of the banding records of Fred G. Bard and William I. Lyon,⁴ as well as our own gull banding for the years 1953 and 1954.

Fred G. Bard banded 3,299 Ring-billed Gull nestlings in three gull colonies, and we banded 20,446 nestlings in nine different colonies. William I. Lyon banded 61 and Robert C. McClanahan, an estimated 60 (based on a single recovery) at one colony each (Table 1, Figure 1).

Recoveries/encounters: The banding office provided a list of all recoveries (found dead) and encounters (found alive) of Ring-billed Gulls banded in Saskatchewan, both before and after 1955. To this list we added: three band numbers sighted by telescope away from the banding site, which had been

reported to the banding office but not entered into the computer; two Ring-billed Gulls incorrectly identified as California Gulls at the time of banding; and two recoveries reported to the band finder and bander that had inadvertently dropped off the computer list. We deleted a duplicate report sent six years later by the same tourist, concerning a gull shot in Mexico. We deleted 17 gulls known to have died before they could fly from their nest island. This left 538 recoveries/encounters.

Locations of recoveries: The banding office provided only the name of the Mexican state in which the recovery took place, not the ten-minute block of latitude and longitude that was calculated for other jurisdictions in the hemisphere. This was insufficient for mapping the 138 recoveries in Mexico. Only for our own banding did we have access to the individual recovery reports sent to the bander, which listed the town nearest to the recovery site, a piece of information not entered into the main-frame computer at the banding office. Exact localities for recoveries of gulls banded by Fred Bard, William I. Lyon and R.C. McClanahan were determined individually from reports sent to banders, as a special and time-consuming favor by Mary Gustafson in the banding office. Locations of three difficult-to-find Mexican localities were provided by Mario A. Ramos and Adolfo Navarro Siguenza. One now-obsolete locality name for Texas was provided by Diana Houston. Thus, we were able

Table 1. Numbers, locations and banders of Ring-billed Gull nestlings in Saskatchewan, 1936 -1989

	Lat-Long**	Lyon 1936	Bard 1936-58	McClanahan 1941	Houston 1953-86	Total
Amisk Lake	543-1021				100	100
Crane Lake	500-1090				46	46
Dore Lake	544-1070				418	418
Fishing Lake	515-1033				236	236
Kindersley slough	512-1091				731	731
Last Mtn Lake nr Penzance	510-1051	61	147	60*	3716	3984
Last Mtn Lake nr Simpson	512-1051		3052		787	3839
Old Wives Lake	501-1055		100			100
Quill Lakes	515-1041				160	160
Redberry Lake	524-1071				14252	14252
Total		61	3299	60	20446	23866

* = McClanahan banding total is a best estimate

** = Latitude is expressed as three digits representing degrees and minutes (543 = 54° 30') as is longitude (1021 =102° 10')

to calculate with certainty the ten-minute block of latitude and longitude for all but two of the 138 recoveries from fifteen different Mexican states.

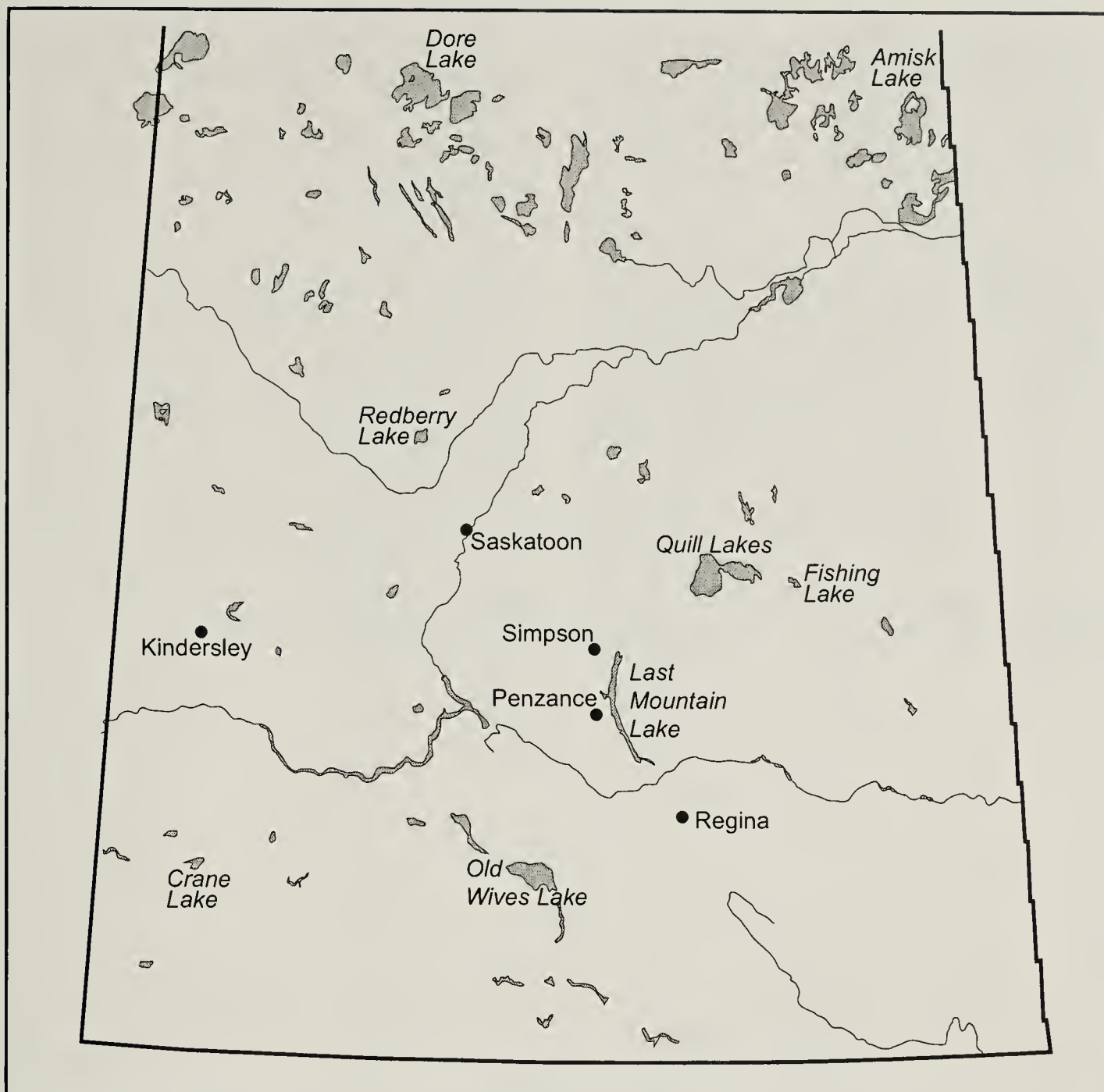
Contacts with band finders: For our own banding records, we attempted to contact band finders whenever their report seemed incomplete or ambiguous. These contacts resulted in the following corrections: 2 for numerical code for a Mexican state, 9 for date of recovery, 20 for "how found," 9 for condition of bird (alive or dead), 9 for recovery location, and 6 for the ten-minute block assigned to the banding location.

Results

Recovery rates: Annual recovery rates declined gradually but consistently over six decades, from 3.5% in the 1930s, to 3.4%, 2.6%, 2.3%, 1.3%, and finally 0.5% in the 1980s (Fig. 2). This gradual decline in the percentage of bands reported is explicable in part by a declining

percentage shot, coupled with a presumed decline in the "curiosity factor" among those finding the bands. However, shooting of gulls persisted in the Mexican states of Michoacan and Sinaloa until 1979 and 1980.

How found: Nearly 80% of the recoveries were accounted for by gulls found dead, shot, injured, killed on highways or by power transmission lines (Table 2). Of interest were three that were hit by airplanes in Canada: two by commercial aircraft, one at the Saskatoon and the other at the Edmonton airport, and a 9-year-old gull by a trainer jet at the Moose Jaw air training base. Two gulls died during severe storms, one in Saskatchewan and one in Montana. One was killed by a bulldozer in the city garbage dump at Beaumont, Texas and one died during a forest fire in Mexico. Another became flightless with oil-soaked feathers at four years of age near Vegreville, Alberta. No gulls were reported as killed on highways during the first half of this



*Fig. 1. Saskatchewan lakes where Ring-billed Gulls were banded.
Map by Carol Beaulieu.*



Ring-billed Gull

Wayne Lynch

study; the first was in 1959, about the time rural Saskatchewan roads began to be improved and average highway speeds of farm vehicles increased.

Of special interest were the encounters of live birds, including eight trapped (usually by cannon nets) in the 1960s, and released alive by waterfowl biologists: two at Snipe Lake, SK, both in 1968, and one at Coronation, AB in 1960. The others were at Upper Souris National Wildlife Refuge (NWR) near Foxholme, ND in 1962; Tennessee NWR, Tennessee, in 1968, and three in Colorado, at Timnath Reservoir in 1963, Fort Collins in 1966 and Mosca in 1968.

Where and when found: Recoveries came mainly from Saskatchewan (187), four other provinces (41), 29 American states (173), and 15 Mexican states (137) (Table 3). The main wintering areas were Texas (43), Sonora (48) and Sinaloa (29), followed by Jalisco (11), Chihuahua (10) and Michoacan (9). However, one gull went on to Veracruz and 13 gulls wandered inland into four other Mexican states (Durango, Guanajuato, San Luis Potosi and Zacatecas), all beyond the mapped usual winter range.⁹ Those from the Pacific and Gulf of Mexico coasts of Mexico delineated the extent of the usual “wintering grounds.”

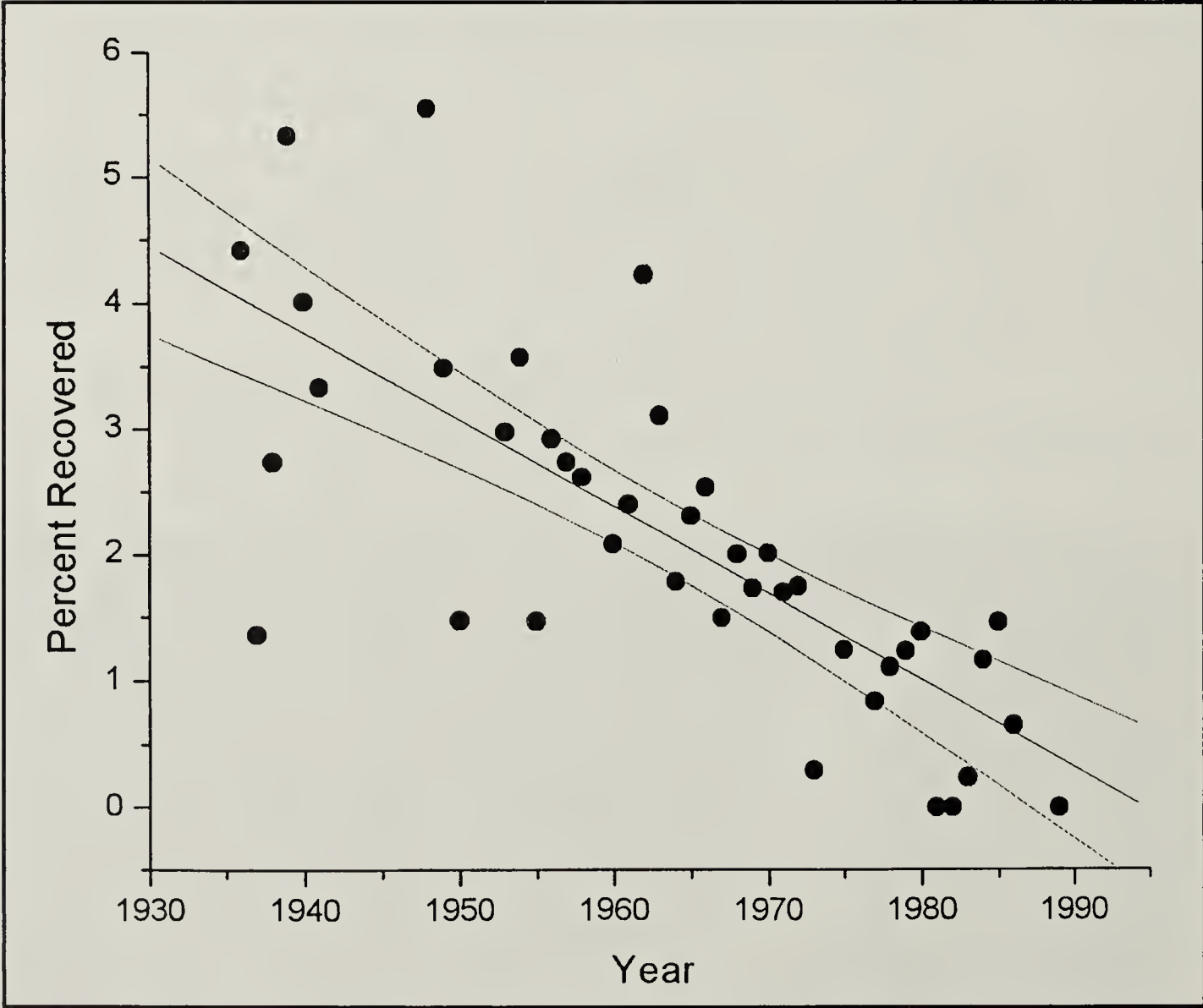


Fig. 2. Declining annual rates of percent recoveries of Ring-billed Gulls banded in Saskatchewan, 1936 - 1989. Each dot represents the percent recovered in that year. Years with fewer than 50 gulls banded (1932, 32; 1976, 15; 1987, 14) were excluded from the calculations. The regression line and 95% confidence intervals are shown. $r^2 = 0.35$; $p = 0.00003$.

The month with the fewest recoveries (12) with an exact date was April. The highest numbers were in July (46), August (48) and October (43). Numbers of inexact dates followed a similar monthly pattern (Table 4).

Monthly maps of recovery locations of Ring-billed Gulls banded in Saskatchewan show the progress of migration (Figs. 3-14, at end of article).

Exact dates are shown as circles and inexact dates with a “+” sign. The only unequivocally unacceptable date concerns a gull found dead at St. Benedict, Saskatchewan, reported in a letter dated 5 February (Fig. 4). The September map (Fig. 11) shows four early migrants: a bird, hatched that year, that reached Stillwater, OK, on 29 September; a 2-year-old bird in Tijuana, Baja California, on 28 September; an

Table 2.
Recoveries and encounters of 538 Ring-billed Gulls banded in Saskatchewan

How found	Where Found			Total	Including know alive
	USA	Canada	Mexico		
Found dead	87	114	14	215	
Shot	36	21	86	143	1
Injured	18	19	6	43	6
In trap		4	2	6	1
By raptor	1	3	1	5	
Band mortality	1			1	
By cat	1	1		2	
Hit wire, power line	4	3	1	8	
By car, on highway	5	14	1	20	
By weather	1	1		2	
Diseased	3	7	2	12	
Underbuilding		1		1	
By oil		1		1	1
Poisoned		1		1	
By fish line	3	2	2	7	2
Caught by hand		5	5	10	3
By misc animal		1		1	
By fire			1	1	
By aircraft		3		3	
By machine		1		1	
“Band obtained”	1	2	5	8	
Skeleton	1	5		6	
Read by telescope		7		7	7
Scientific specimen		1		1	
Trapped, released	5	3		8	8
Miscellaneous	2			2	
Band only	4	8	11	23	
	173	228	137	538	29

Table 3.**Number of Ring-billed Gull recoveries in:****CANADA**

Alberta	AB	29
British Columbia	BC	2
Manitoba	MB	9
Ontario	ON	1
Saskatchewan	SK	187
		228

USA

Alabama	AL	1
Arizona	AZ	1
California	CA	11
Colorado	CO	16
Florida	FL	2
Idaho	ID	5
Illinois	IL	2
Iowa	IA	4
Kansas	KS	5
Louisiana	LA	5
Maryland	MD	1
Michigan	MI	1
Minnesota	MN	9
Mississippi	MS	2
Missouri	MO	1
Montana	MT	7
Nebraska	NE	7
New York	NY	1
North Dakota	ND	14
Ohio	OH	1
Oklahoma	OK	15
South Carolina	SC	1
South Dakota	SD	9
Tennessee	TN	1
Texas	TX	43
Utah	UT	4
Washington	WA	1
Wisconsin	WI	1
Wyoming	WY	2
		173

MEXICO

Baja California	BCF	5
Chihuahua	CHH	10
Coahuila	COA	2
Durango*	DGO	3
Guanajuato*	GTO	7
Jalisco	JAL	11
Michoacan	MIC	9
Nayarit	NAR	2
Nuevo Leon	NL	1
San Luis Potosi*	SLP	1
Sinaloa	SIN	29
Sonora	SON	48
Tamaulipas	TAM	6
Vera Cruz*	VER	1
Zacatecas*	ZAC	2
		137
Total		538

* indicates state outside
expected winter range

11-year-old at Cueramaro, Guanajoto, on 28 September; and a 1-year-old at Huatabampo, Sonora, letter dated 30 September.

Some gulls, presumably non-breeding individuals, wander widely when one year old, exemplified by two in Nebraska on 12 and 14 July and one at Tonawanda, NY on 1 August (Figs. 9 & 10). In August, a 7-year-old gull wandered 1060 km northwest of its natal colony to Fort Vermilion, Alberta, a little north of the known colonies mapped by Semenchuk.¹⁰

Speed of travel: Although two Ring-billed Gull nestlings were recovered a mere four days after they were banded, at Hafford village and at Arelee, at distances of 20 and 60 km from their natal island in Redberry Lake, we doubt

that many nestlings left the lake until at least ten days after banding, the figure chosen for column 2 in Table 5. This table shows distances traveled by selected nestlings in their first southward migration between 8 July and 30 October. These gulls migrated more slowly than most bird species, averaging only 10 to 35 km per day (Table 5).

Natal dispersal: Greenwood defined natal dispersal as the direction and distance from the birth location to the first breeding location,² but we have modified this to include the first encounter of a bird at that breeding location. We have data on 18 instances of natal dispersal by Ring-billed Gulls banded in Saskatchewan. These 18 birds bred at 13 different gull colonies at distances of 35 - 260 km within

Table 4.
Month and season of recovery of Ring-billed Gulls banded in Saskatchewan

Month	Exact Date	Inexact	Total
Jan.	24	11	35
Feb.	23	13	36
Mar.	27	16	43
Apr.	12	6	18
May	24	12	36
June	20	10	30
July	46	11	57
Aug.	48	15	63
Sep.	32	11	43
Oct.	43	30	73
Nov.	37	11	48
Dec.	30	10	40
Spring		5	5
Summer		3	3
Fall		2	2
Hunting		2	2
Winter		1	1
Uncertain		3	3
Totals	366	172	538

Table 5.

Indicators of speed of travel of Ring-billed Gulls during first southward migration

Date	Est. Date	Gull	Lat-long**	Date	Location	State/	Lat-Long**	Distance	Days	Km/day
Banded	left lake*	Colony		Recovered		Province		(km)	Elapsed	
Jun 28/72	Jul 8	Red berry	524-1071	Jul 16/72	Prince Albert	SK	531-1054	115	8	14
Jul 7/79	Jul 17	Redberry	524-1071	Aug 28/79	Edmonton	AB	533-1133	430	42	10
Jul 4/36	Jul 14	LML Simpson	512-1051	Sep 29/36	Stillwater	OK	360-0971	1820	77	24
Jun 29/71	Jul 9	Redberry	524-1071	Oct 6/71	Hooper	UT	410-1120	1345	89	15
Jun 30/38	Jul 10	LML Simpson	512-1051	Oct 15/38	Paxton	NE	410-1012	1185	97	12
Jul 4/56	Jul 14	LML Penzance	510-1051	Oct 29/56	EIPalmito	DUR	253-1045	2835	107	26
Jul 7/79	Jul 17	Redberry	524-1071	Oct 30/79	La Angostura	MIC	201-1022	3640	105	35

LML - Last Mountain Lake

DUR - Durango

MIC - Michoacan

* = estimated date of leaving colony is 10 days after banding

** = Latitude is expressed as 3 digits representing degrees and minutes (524 = 52° 40') as is longitude (1071 = 107° 10')

Table 6.
Natal dispersal from five Saskatchewan Ring-billed Gull Colonies

Lake where banded	Date banded	Where recovered	Lat-long**	Age* (yrs)	Distance (km)	Date found	How Found
Redberry L (524-1071)	Jun27/63	Last Mtn L, Penzance SK	510-1051	5	230	May26/68	injured
"	Jun20/64	Reed Lake, Morse SK	502-1070	2	260	Jul30/66	injured
"	Jun27/63	Beaverhills L, AB	532-1122	1	355	May20/64	sci spec
"	Jun27/63	Upper Souris NWR, ND	482-1013	5	625	Jul15/68	dead
"	Jul10/76	Banks L, WA	473-1191	20	1030	Jun8/96	dead
"	Jul6/75	Leslie Spit, Toronto, ON	433-0792	3	2285	May6/78	telescope
Last Mtn L Simpson (512-1051)	Jun21/49	Last Mtn L, Penzance SK	510-1051	5	35	Jul19/54	disease
"	Jul1/38	Liberty, nr Last Mtn L, SK	510-1052	4	40	May23/42	dead
"	Jul12/49	Old Wives L, SK	500-1054	5	155	May10/54	in trap
"	Jul8/48	Krydor, nr Redberry L, SK	524-1070	3	195	May15/51	injured
"	Jun24/40	Medicine L NWR, MT	482-1042	2	340	Jul7/42	rainstorm
"	Jun21/49	Beaverhills L, AB	532-1124	5	375	Jun17/54	dead
"	Jun30/61	Garrison Reservoir, ND	473-1012	7	510	Jul11/68	dead
Last Mtn L Penzance (510-1051)	Jul4/56	Last Mtn L, Simpson SK	512-1051	6	35	June24/62	dead
"	Jun21/49	Reed L, Morse SK	502-1070	4	150	June14/53	dead
"	Jul4/56	Chase L NWR, ND	470-0992	9	615	June5/65	dead
Quill L (515-1041)	Jul29/56	Fishing L, SK	515-1033	5	45	Jun4/61	dead
Fishing L (515-1041)	Jun28/63	Cymric nr Last Mtn L, SK	511-1050	6	125	Jun/69	injured
MEAN DISTANCE					411 km		

* = Age is in terms of breeding years, hence May is included with June and July

**= Latitude is expressed as 3 digits representing degrees and minutes (510=51° 00') as is longitude (1051 = 105° 10')

Table 7 .

Natal Fidelity. Returns to any Saskatchewan gull breeding site

Lake where banded	Date banded	Where recovered	Prov/ State	Lat-long**	Age* (yrs)	Distance (km)	Date found	How Found
Red berry L (524-1071)	Jun30/58	Red berry L	SK	524-1071	2	0	Jun27/60	freshly dead
"	Jun23/60	Redberry L	SK	524-1071	3	0	Jul28/63	dead
"	Jul1/65	Redberry L	SK	524-1071	7	0	Jun28/72	fresh dead
"	Jul3/70	Redberry L	SK	524-1071	10	0	Jul15/80	band thin
"	Jun29/71	Redberry L	SK	524-1071	9	0	Jul5/80	band v thin
"	Jul5/80	Redberry L	SK	524-1071	1	0	Jun14/81	dead
"	Jun25/61	N Borden nr Redberry L	SK	523-1071	4	20	Jn21/65	dead
"	Jul3/70	Blaine L nr Redberry L	SK	525-1070	5	20	May21/75	injured
LastMtnLSimpson (512-1051)	Jun30/38	Venn nr Last Mtn L	SK	513-1051	4	20	Jul1/42	disease
	Jun23/40	Govan nr Last Mtn L	SK	511-1050	2	20	Jun12/42	dead
LastMtnLPenzance (510-1051)	Jul16/55	Last Mtn L Penzance	SK	512-1051	1	0	Jul4/56	dead

MEAN DISTANCE

7.3 km

* = Age is in terms of breeding years, hence May is included with June and July

** = Latitude is expressed as 3 digits representing degrees and minutes (524 = 52° 40') as is longitude (1071 = 107° 10')

Saskatchewan; 355 and 375 km to Alberta; 510 and 630 km to North Dakota; 1030 km west to Banks Lake, Washington, and 2285 km east to Leslie Spit in the Toronto harbor, Ontario (Table 6).

Natal fidelity: There were only 11 instances of natal fidelity, i.e., gulls that returned during the breeding season to, or immediately adjacent to, their colony of origin when of breeding age (Table 7). When only one year of age, a year before breeding age, two gulls unexpectedly returned to their natal sites, one at Redberry Lake and another at Last Mountain Lake. Six gulls returned to their colony of origin, presumably to breed: Redberry Lake when 2 years old, 7 years old (freshly dead), 9 years old (band number deciphered by chemical etching), and 10 years old (band worn thin), and Last Mountain Lake when 2 and 4 years old. Four other gulls died within a ten-minute block of latitude and longitude adjacent to known nesting areas, and were presumably breeding birds on food-gathering errands when killed (Table 7).

Longevity: Three Saskatchewan gulls were reported at ages 17, 18, and 20; the oldest gull was found freshly dead, thin and emaciated, on a small gull and tern island colony in Banks Lake, Washington. The official longevity record for this species is 27 years, 3 months.⁶ “Calculation of mortality rates” is “confounded by wear and loss of aluminum bands”,⁹ hence gull longevity may be appreciably greater than banding records indicate.

Discussion

An earlier study from Lakes Michigan and Huron, by Frederick E. Ludwig,⁷ showed a slightly higher recovery rate of 2.7% from 18,259 Ring-billed Gulls

banded, 1926-1941. J. P. Ludwig later showed that 9.5% of the leg band can be lost each year, which greatly diminishes the value of longevity calculations for Ring-billed Gulls.⁸

Twelve of Ludwig's 483 gulls (2.5%) had been killed on highways, compared to 4% in our study, all in the latter half. In the northern United States, highway deaths began in the 1930s, two decades earlier than in Saskatchewan. Since Ludwig's recoveries were mainly from areas that already had paved highways, traffic speed was no doubt higher two decades earlier than in Saskatchewan. In Ludwig's study, 9.9% of recoveries were birds that were reported as shot, compared to 27% in our study.

The most unexpected result from Saskatchewan banding was the prevalence of distant natal dispersal, with 18 such records at up to 1030 km west and 2285 km east, and an average natal dispersal distance of 411 km (Table 6). On 6 May 1978, a band placed on a nestling at Redberry Lake on 6 July 1975 was read with binoculars at Leslie Spit; the adult was on three eggs, two of which hatched (Hans Blokpoel, in litt., 10 October 1978). That colony began in 1973, when all ten nests failed, and increased to 10,000 nests in 1976.¹ Especially within new colonies, such as that at Leslie Spit in the Toronto Harbor, Ring-billed Gulls regularly begin nesting when only two years old.

Ring-billed Gulls found breeding at distant colonies (18) outnumbered those that returned to the colony of their origin (11), in spite of the fact that there were more opportunities for banders to find freshly dead birds at colonies that were visited each year. Thus the natal fidelity rate of 11/29 (38%) was

less than the natal dispersal rate of 18/29 (62%).

Striking differences in direction of migration and age of first breeding are evident between Ring-billed and California Gulls. Nestling California Gulls begin to leave their nesting colony in early July, move more quickly in the first month after learning to fly, travel west or even west-north-west to the Pacific coast to mingle at Vancouver with California Gulls raised in Alberta, North Dakota, Montana, Wyoming, Idaho, Washington, Oregon and California.^{3,5} It is rare for Saskatchewan California Gulls to visit any inland state other than North Dakota. After three years of summering in British Columbia, California Gulls return east to their colony of origin to breed before they are four years old, whereas Ring-billed Gulls disperse more widely to other colonies, occasionally return when one year old, and often breed at two years.

Acknowledgments

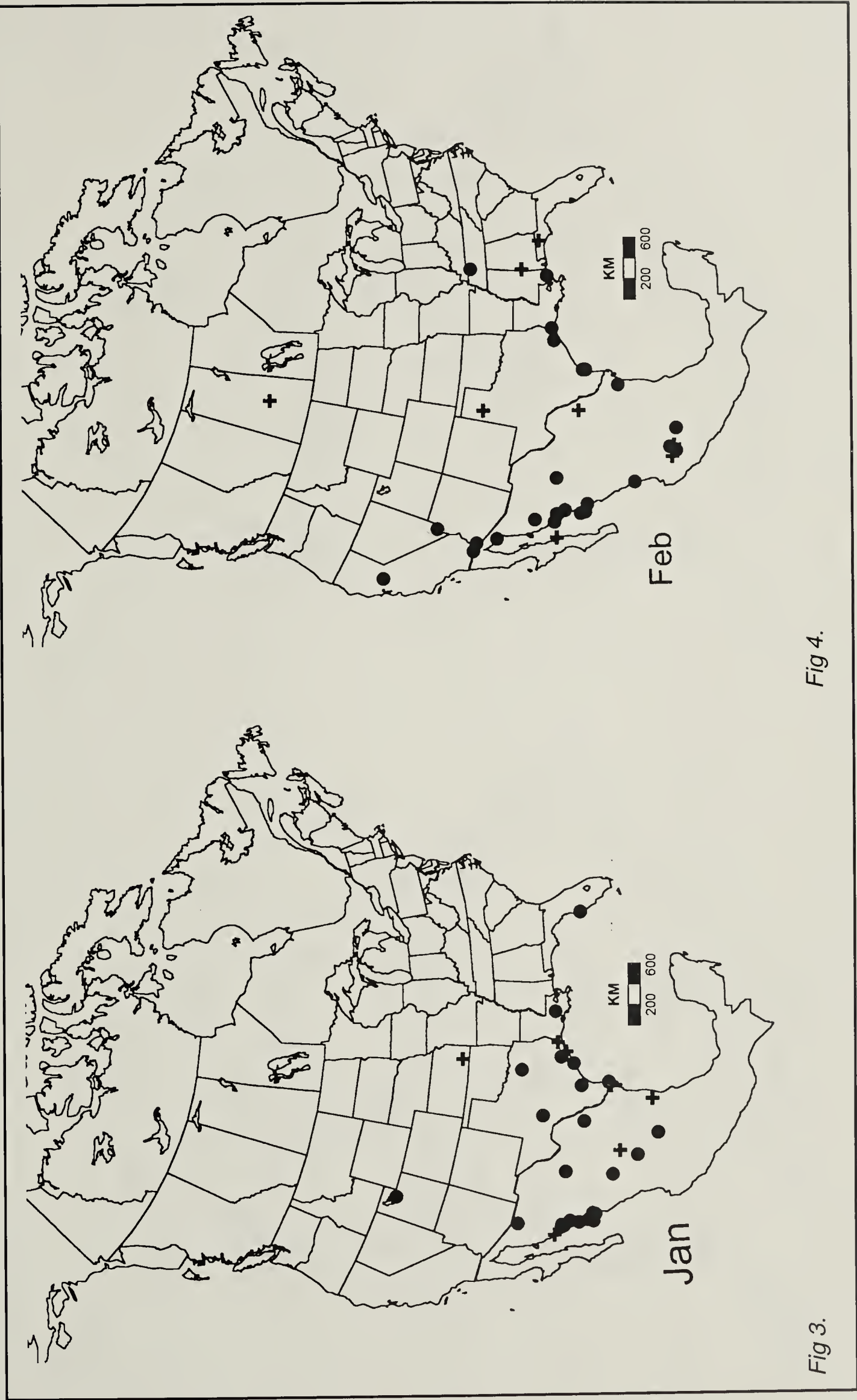
Details concerning exact localities in Mexico were provided by Mary Gustafson and one in Texas by Diana Houston. Mario A. Ramos explained the location of Nácori Chico, Sonora and Adolfo Navarro Siguenza did the same for Atanasia and two communities named Providencia. Helpful comments

were provided by an anonymous reviewer.

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Figs. 3-14, (on the following pages)

Recovery locations of Ring-billed Gulls banded in Saskatchewan, 1936-1986, shown by month the bird was found. • = exact dates. + = inexact dates. Maps by Kathy M. Meeres



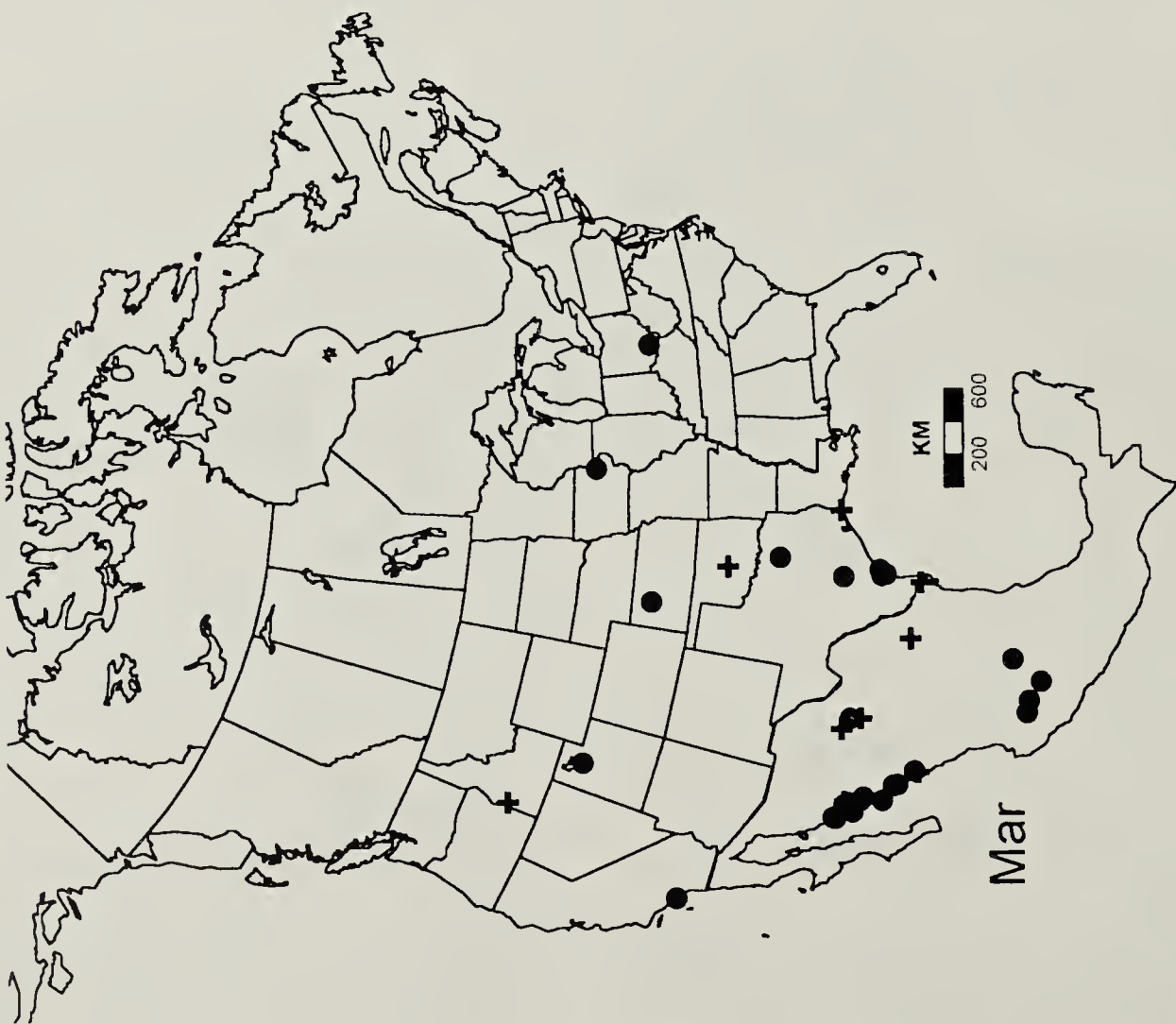


Fig 5.

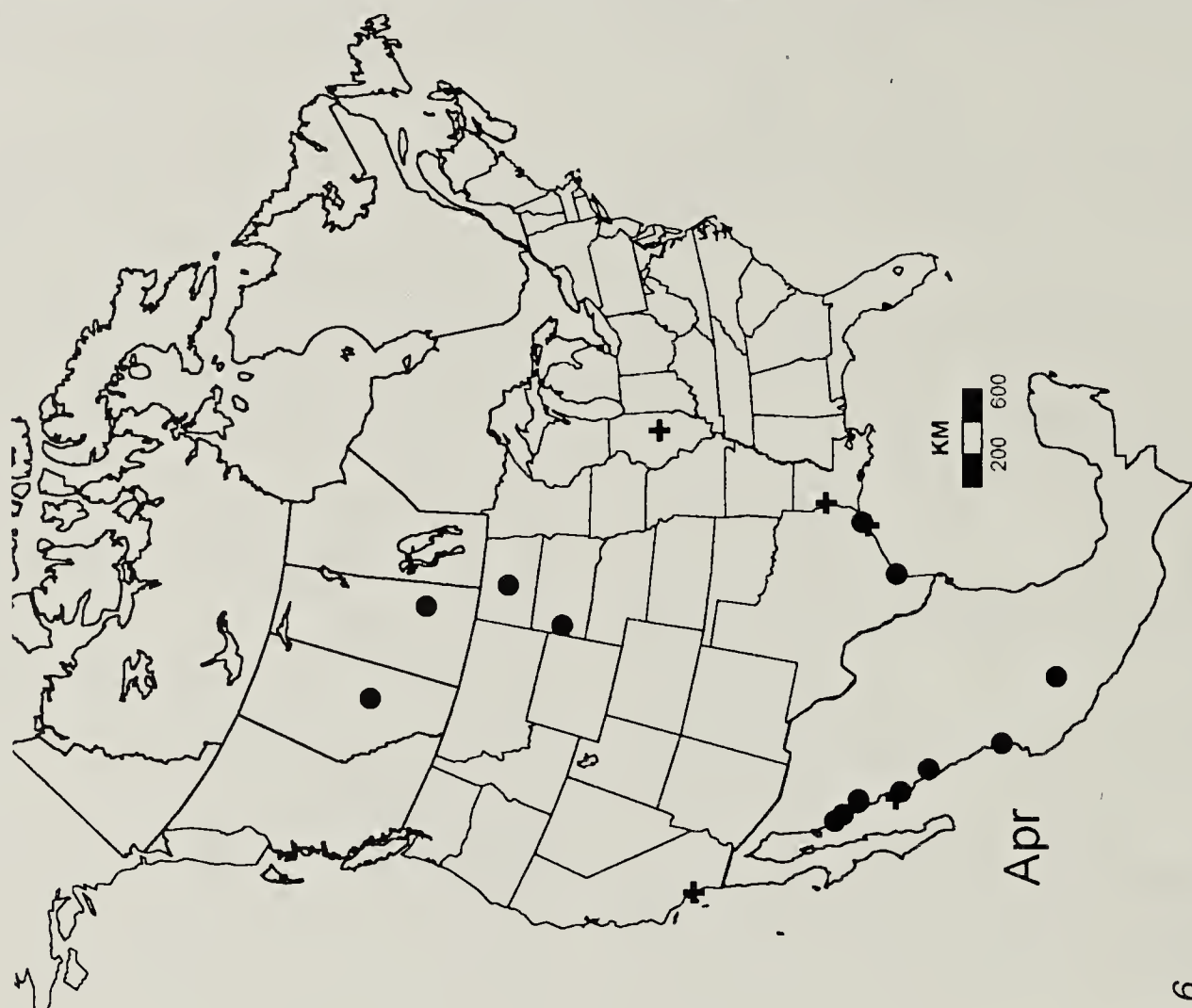


Fig 6.



Fig 7.



Fig 8.

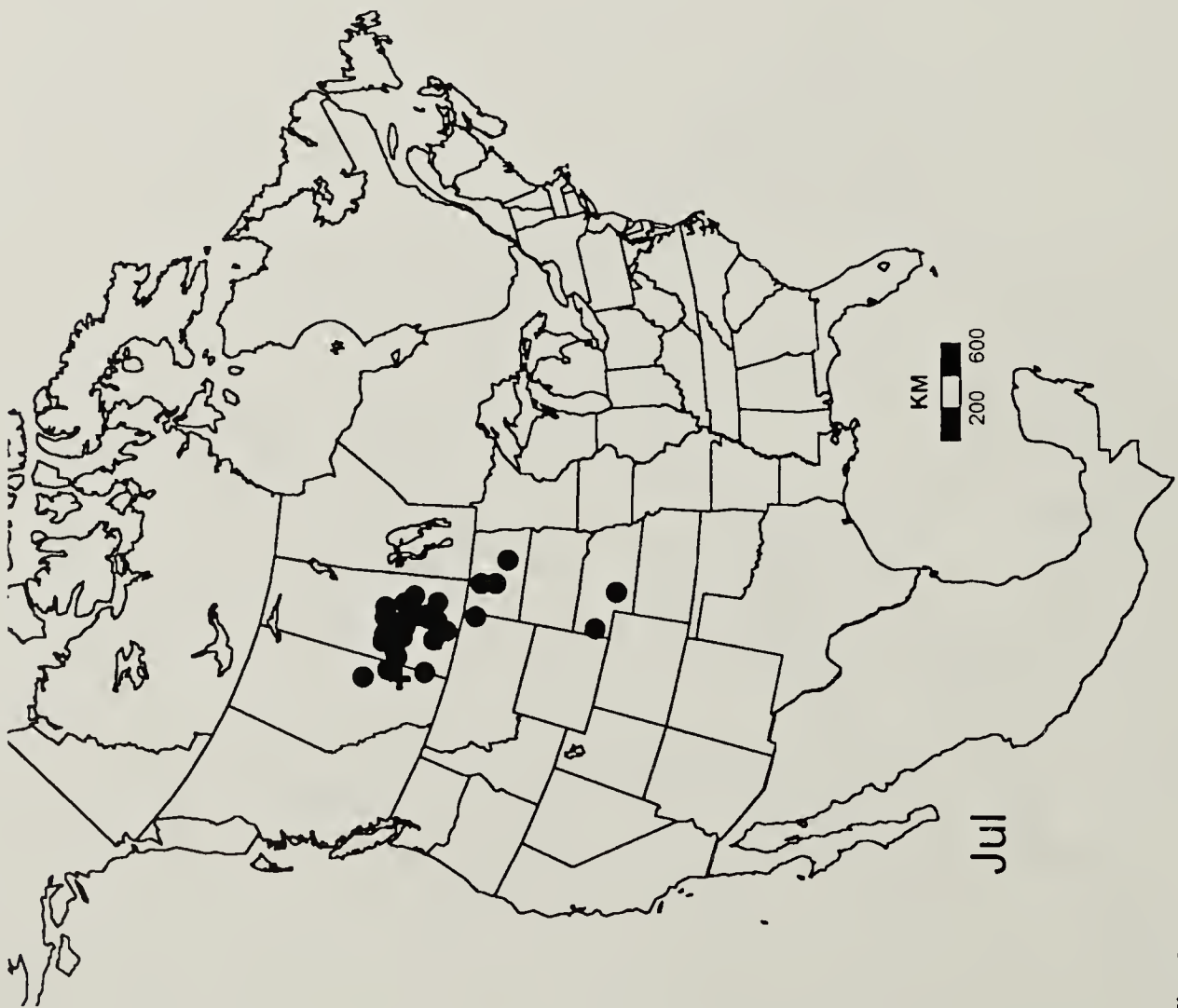


Fig 9.

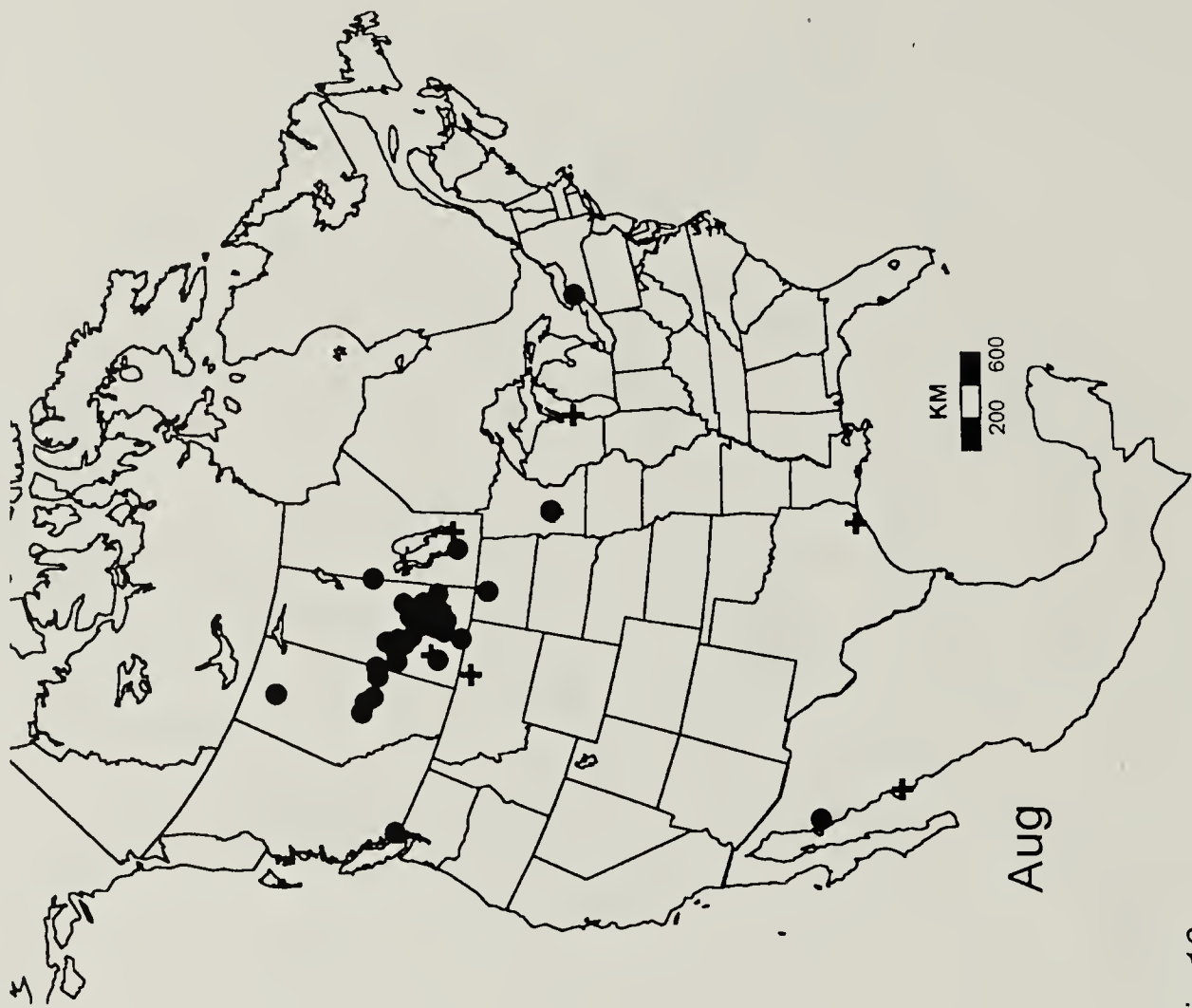


Fig 10.

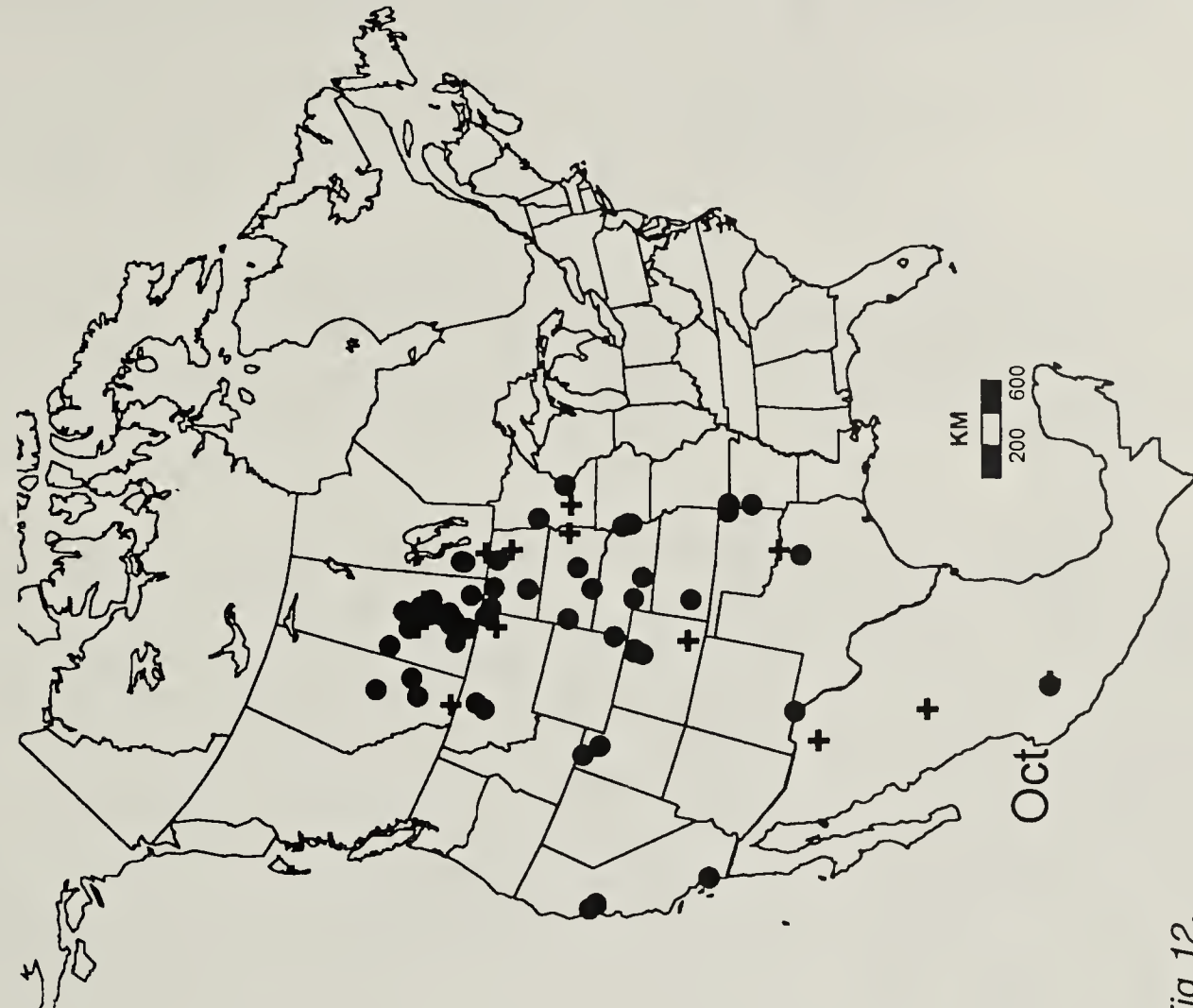


Fig 12.

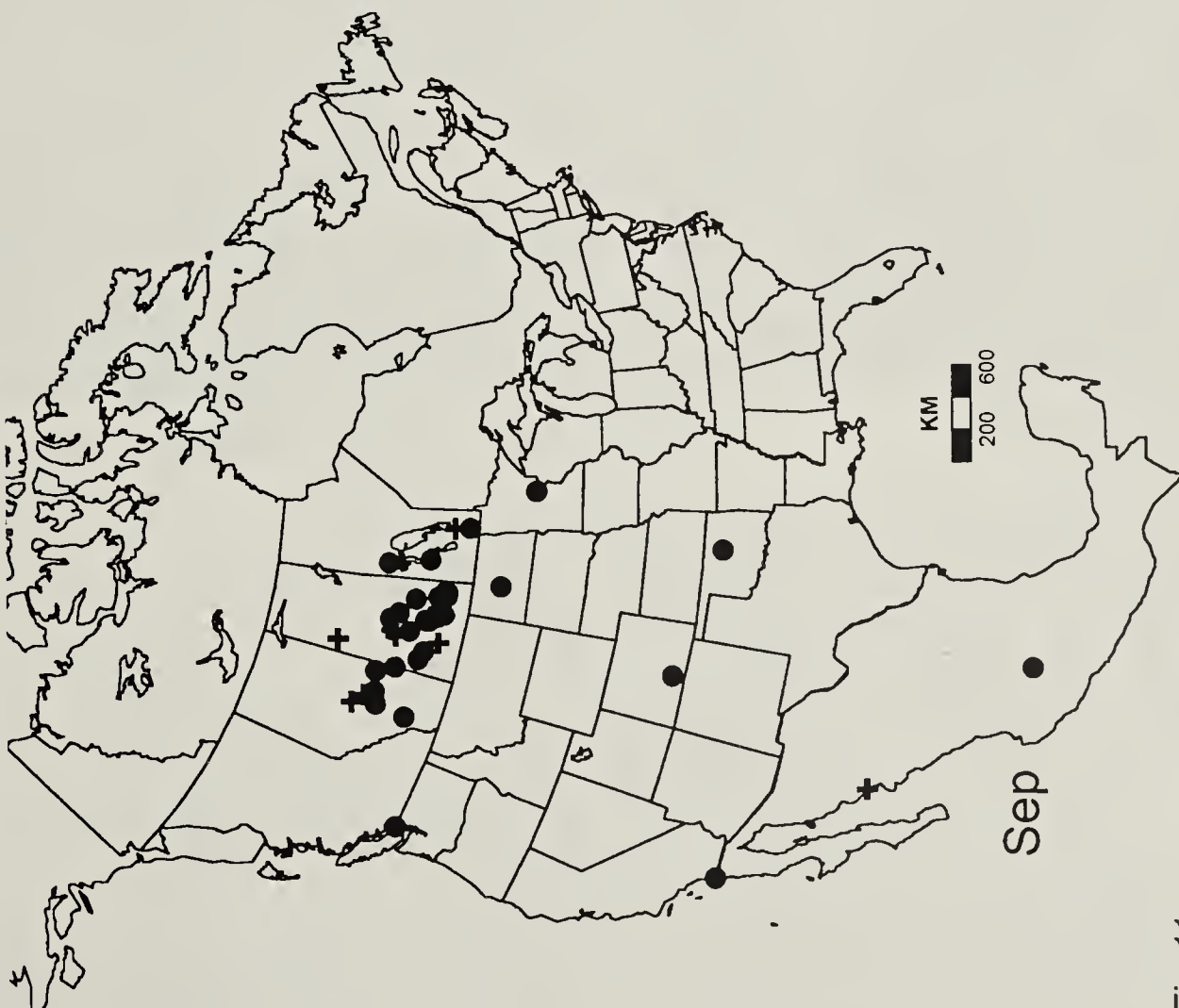


Fig 11.

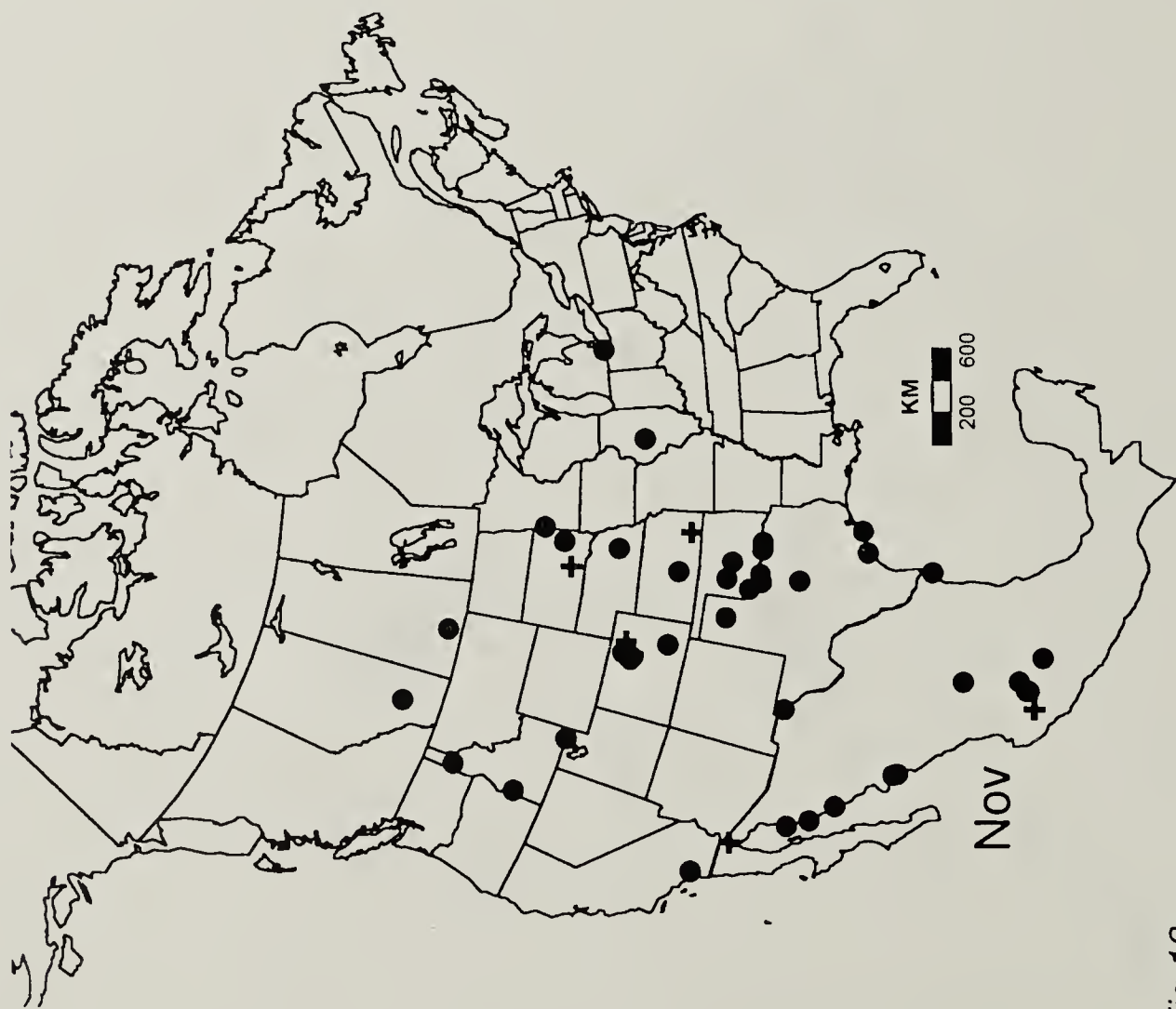


Fig 13.

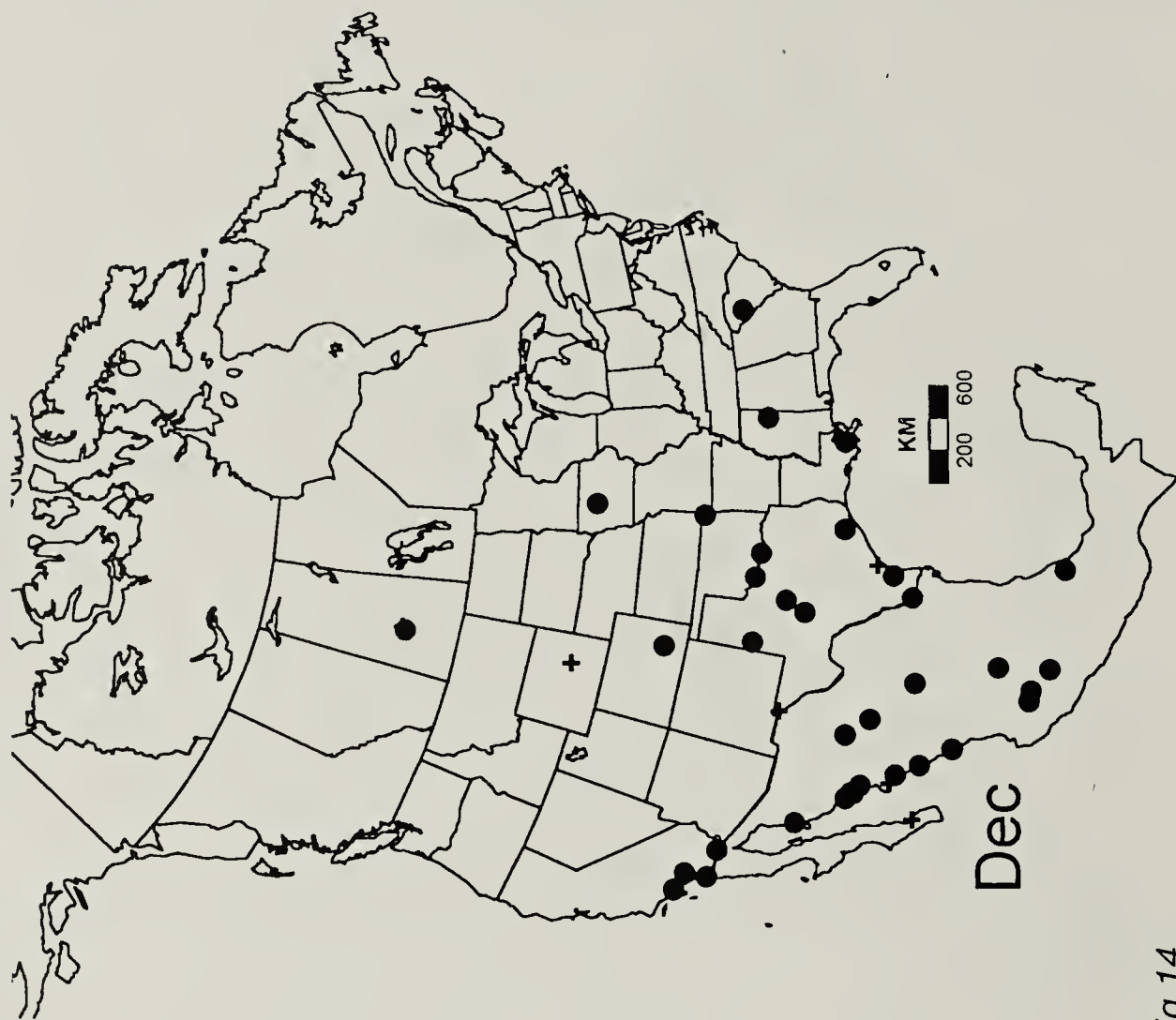


Fig 14 .

POPULATION CHANGES IN WATER-ASSOCIATED BIRDS AT BESNARD LAKE, SK, 1976-2005

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Pelicans at Besnard Lake

Jon Gerrard

Introduction

Spatial and temporal variations in animal populations can result from changes in the amount of suitable habitat, food availability or human disturbance.⁸ As one example, differences in Bald Eagle populations on Besnard and Nemeiben Lakes were due primarily to corresponding differences in prey (fish) populations.² Tracking changes in bird populations can be useful in understanding

changes in prey availability and habitat quality as well as in the birds themselves. It is in this context that we report results of boat surveys on Besnard Lake in 2003, 2004 and 2005, and compare the findings with observations made from 1976 to 1990.

Besnard Lake, about 50 km west of La Ronge, SK and just south of the Churchill River, is on the southern boundary of the Precambrian Shield

and within the boreal forest. It falls within the Churchill River drainage system. With a maximum length of 45 km, Besnard Lake has some 255 islands, a water area of 177 km², and a shoreline length of approximately 400 km.³ The lake has two fishing camps, the first present before 1968, and the second established in 1973. There is also a campground with a boat ramp and dock which was built in the mid-1970s. The road into Besnard Lake was completed in 1973, and resulted in increased sport fishing pressure. There are 68 recreational cabin leases on the lake, with a minimum distance of 1.6 km between cabins. Most cabins were built between 1972 and 1985, with a few built since 1995.

Methods

The surveys described here were conducted from a small motor boat. For the purpose of these surveys, the shoreline was marked off into 8 km sections. Each survey (ideally two are done per summer, one in early July and one in late July) covered half of the shoreline by focusing on either the odd-numbered or even-numbered 8-km-long sections. One or more (usually three) observers in the boat travelled at 8-16 km/hr between 20 and 100 meters from shore as described previously.^{4,5} For Bald Eagles, the survey was validated with an alternative approach to estimating the eagle population, using re-sightings of marked birds.⁷ In 2003 and 2005, odd numbered sections were covered during the first half of July, while in 2004, even numbered sections were censused during this period. The findings for these years were compared with earlier surveys in the first half of July conducted in 1976 (odd sections), 1977 (odd sections), 1979 (even sections), 1984 (odd sections), and 1990 (odd sections).

Of the birds reported here, surveys in the first half of July in 1976 and 1977 included only Bald Eagles, Osprey and Common Loons. The remaining surveys included all species reported. Where three surveys of a species were conducted between 1976 and 1979, or between 2003 and 2005, the results are presented in the tables as the mean of the three surveys with the 95% confidence interval shown in brackets.

In these surveys, we did not include nestlings and we excluded young born in the year of the survey. Fledged Belted Kingfisher and Spotted Sandpiper young were not distinguished from adults on these surveys, but the young of these species rarely fledge on Besnard Lake until the last half of July, making it unlikely they contributed to the counts reported.

Results

Birds showing increases from 1976 to 2005

Birds showing increases from 1976 to 2005 are listed in Table I. For seven species, the number of birds observed on surveys between 1976-1990 was below the lower 95% confidence interval for the number of birds present in 2003-2005, indicating an increase in the bird population. For American White Pelican, the greatest increase occurred from 1979 to 1984. Since 1984, their numbers have been reasonably stable. For mergansers (Red-breasted and Common mergansers were combined), there has been a progressive increase in numbers from 1979 to the present. For Common Goldeneye and Osprey, the increases occurred primarily between 1984 and 1990, with numbers showing less change from 1990 to 2005. For Bufflehead and Great Blue Heron, the biggest increases occurred between 1990 and 2003-2005. Ring-necked

Table I:

Birds showing increases from the 1970s to 2005 (Number of birds per 200 km shoreline in the first half of July)

Year	No. of Surveys	Merganser	Common Goldeneye	Bufflehead	Great Blue Heron	American Osprey	White Pelican	Ring-necked Duck
1976-1979	3	47*	42*	1*	0*	10.3* (0-0.7)	7*	0*
1984	1	57*	28*	4	1*	1*	55	0*
1990	1	72*	72	0*	3	4	65	0*
2003-2005	3	107 (91-124)	77 (52-102)	11.7 (3.1-20)	10 (1.1-19)	5.7 (1.8-9.6)	49 (20-78)	12.3 (2.4-22)

Brackets show the 95% confidence interval; * - outside the 95% confidence interval

Table II:

Birds showing an increase from 1970 to 1990 followed by a decrease (number of birds seen per 200 km of shoreline in the first half of July)

Year	No. of Surveys	Common Loons	White-headed Gulls	Bonaparte's Gulls
1976-1979	2	35.7* (0-80)	16*	0
1984	1	58	135	1
1990	1	80*	310*	17*
2003-2005	3	54 (34-74)	165 (92-238)	6.3 (0-16)

Brackets show the 95% confidence interval; * - outside the 95% confidence interval

Table III: Birds showing no change or a decrease from the 1970s to 2005 (number of birds per 200 km of shoreline in the first half of July)							
Year	No. of Surveys	Adult Bald Eagle	Immature Bald Eagle	Total Bald Eagle	Belted Kingfisher	Spotted Sandpiper	Common Tern
1976-1979	2	32 (28-36)	21* (14-28)	53 (43-63)	10	16	7
1984	1	35	10*	45	5	25	12*
1990	1	35	14*	49	30	3	7
2003-2005	3	35 (24-46)	6.3 (5-8)	41 (31-51)	18.7 (1-36)	13 (0-30)	5.7 (2-9)

Brackets show the 95% confidence interval; * - outside the 95% confidence interval

Ducks were present in 2003, 2004 and 2005, but from 1968 to 1990 were observed on Besnard Lake only twice in July– with pairs seen July 4 and 8, 1976.

For several species, we observed an increase in numbers in 2003-2005 compared to earlier years, but the variability of the results in 2003-2005 meant that the earlier results still fell within the 95% confidence interval for the population estimate for 2003-2005. For Mallards, five birds were seen in each of the 1976 and 1984 surveys, increasing to 24 in 1990 and an average of 23 from 2003-2005. Double-crested Cormorants were not seen on the lake in 1979 or 1984, but were seen on surveys in 1990 (6 birds), with an average of 3.7 birds for 2003-2005. Canada Geese were present in early July in 2003 (one bird) and 2004 (two birds), but not previously on the surveys though we have made occasional previous observations of these geese in summer at other times.² No Red-necked Grebes were seen on the 1979, 1984 or 1990 surveys, while these birds were seen in 2003 (12), 2004 (16) and 2005 (6).

Birds showing an increase up to 1990 followed by a decrease
Species that increased from 1976 to 1990, and then subsequently showed a decline, include the Bonaparte’s Gull, white-headed gulls (Herring, California and Ring-billed gulls combined), and Common Loons (Table II). The decrease in numbers of the white-headed gulls from 1990 to 2003-2005 appears to be primarily in the number of Ring-billed Gulls. The number of Herring Gulls continued to be substantial from 2003-2005, indeed the majority of gulls which were identified in these recent years were Herring Gulls. This contrasts with

earlier years when the Ring-billed Gulls were as common or more common than Herring Gulls. The proportion of California Gulls was relatively small on all surveys.

Birds showing no change or a possible decrease from the 1970s to 2004

The number of adult (with complete white head and tail) Bald Eagles on Besnard Lake has stayed stable from 1976 to 2005 (Table III). The number of immature Bald Eagles on Besnard Lake in early July has decreased since 1976. There was no significant change in the number of Belted Kingfishers, Spotted Sandpipers and Common Terns from 1976 to the present.

Discussion

The changes observed in numbers of birds on Besnard Lake from 1976 to 2005 are consistent with the postulate that increased fishing pressure removes larger predatory fish (walleye and northern pike), resulting in an increased availability of minnows and smaller fish^{6,10} and an increase in the species of birds for which smaller fish make up an important food source (mergansers, Great Blue Herons, American White Pelican and Osprey).

Increases in Common Goldeneye, Bufflehead and Red-necked Grebe might also reflect an increase in small fish, but for Common Goldeneye and Bufflehead, aquatic invertebrates are normally more important food sources,^{7,9} and the increase in these species could reflect an increase in aquatic invertebrates.

An alternative explanation is based on observations of increased algal growth around the shores of at least the southern parts of Besnard Lake

starting in the late 1980s and early 1990s. Algal growth on rocks was not present in the same way in the 1970s or early 1980s, and its presence now may indicate a change in the status of the lake toward being more eutrophic.

One of the noteworthy changes on Besnard Lake has been the increase in wild rice. Wild rice was seeded in certain shallow bays (particularly during the 1980s and early 1990s) and has since spread into other parts of the lake. On the 2003 and 2004 census, the Red-necked Grebes were associated with the wild rice habitat and we suspect the two are linked.

From 1976 to 1990, fish offal from the fishing camps was put back into the lake waters and a landfill site for garbage was located within 0.3 kilometers of the lake. Between 1990 and 2003, the landfill site was moved to a new location a kilometer from the lake and fish offal was put in the landfill rather than in the lake. The increase in Ring-billed Gulls from the 1970s to 1990 and then the subsequent decrease may be related to the increased availability of offal and garbage to gulls from 1976 to 1990, followed by a decrease from 1990 to 2005.

The modest decrease in Bald Eagles in 2004 and 2005 was related to fewer immatures seen on these surveys. Immatures normally move onto Besnard Lake from small lakes where numerous fish spawn in early July. It is possible this movement was delayed in the period from 2003 to 2005 so that immatures were seen in fewer numbers on these surveys. The number of breeding Bald Eagles has not changed significantly from 1976 to 2005.

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Eaglet on nest at Besnard Lake

Jon Gerrard

THE RISE AND FALL OF THE RED FOX BENEATH THE APEX OF PALLISER'S TRIANGLE

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At its Annual General Meeting, held in the Cypress Hills in 1997, Nature Saskatchewan unanimously passed a resolution recognizing "the beneficial role of the Great Plains Coyote (*Canis latrans latrans*) in maintaining a healthy prairie ecosystem, the negative ecological impact that the Red Fox has caused on the prairies, and including this basic ecosystem problem in its strategic plan of priority issues for action."⁸

This call for action followed an article that I published in *Blue Jay* in 1996 concerning the Red Fox invasion that my family and I had witnessed during the latter half of the 1960s in west-central Saskatchewan.¹ Since Coyotes are the primary agent in limiting fox numbers on the prairies,^{10, 13} it is my contention that the ecological damage can be reversed through management decisions aimed at maintaining a Coyote population sufficient to exclude Red Foxes.⁸ Anecdotal evidence indicates that Coyotes have been regaining control at the expense of the fox but since there are no general wildlife monitoring programs in place, the ecological consequences continue to unfold in a void of empirical evidence.

This article began as an exercise in 2003 to determine whether the

Christmas Mammal Counts (CMC) could fill that empirical void and throw some light on the relationship between fox and coyote populations and some of the prey species. At that time the surveys had "fallen on hard times" according to the co-editor of the *Blue Jay* (A. Leighton, pers. comm., July 29, 2003) and it was uncertain whether they would continue or have any value in monitoring wildlife populations. The co-editor asked me whether anyone had ever looked at the data to see whether it might shed some light on the relationship between foxes and coyotes. I suggested that the surveys had begun too late to document the initial changes, but volunteered to conduct a preliminary analysis of the data.

The CMC were concocted, in large part, due to the Red Fox invasion. The idea began with Wayne Harris and myself, somewhere between Stan Rowe's ecology lectures and our statistics course at the University of Saskatchewan, Saskatoon. We shared similar perspectives from our rural farming backgrounds, and spent time together hunting and birding in each other's home territories. Wayne's perspective was different than mine because his home was deeper within the aspen belt, and he did not recall a

time before the fox invasion. Wayne was an avid birder who encouraged my participation in the Christmas Bird Counts, but I questioned their utility in the absence of data on mammalian predators. Thus, the first Christmas Mammal Count was organized in 1974,⁵ but after participating in it, I found employment outside the province, and left him holding the bag, a responsibility he carried on for 27 years.⁴

Undertaking a marathon of counts over a vast area of Saskatchewan (294 counts in 36 localities), Wayne amassed a wealth of experience and data.⁶ Public participation in the surveys rose from 16 counts in 1974 to 105 counts in 2001, all of which he

compiled in addition to the bird surveys.¹¹ In his brief overviews, Wayne commented on the frequency of occurrence of five main species, which were usually Coyote, jackrabbit, fox, White-tailed deer, and Snowshoe Hare, but given the variable geographic coverage, snow conditions, and use of tracks as proxy indicators, he wasn't able to say much about population trends. Besides, the fox invasion began before the mammal counts were initiated, and much of the ecological change had already occurred.^{1,3}

Methods

As a preliminary exercise, I examined three species – Coyote, jackrabbit and fox, recorded from localities within the

Table 1. Frequency of occurrence and abundance of coyotes, foxes and jackrabbits in Palliser's Triangle^a recorded on Christmas mammal counts in selected years between 1974 - 2001.

Year	1974	1976	1984	1994	2001
# counts	9	20	34	33	41
# km car	1635	1602	4489	5260	8512
Coyote frequency	67	75	65	79	90
#	14	8	51	96	153
# /count	1.5	0.4	1.5	2.9	3.7
# /100 km	0.8	0.5	1	2	2
Fox frequency	67	50	53	30	46
#	7	5	8	3	7
# /count	0.9	0.3	0.2	0.1	0.2
# /100 km	0.4	0.3	0.2	0.06	0.08
Jackrabbit frequency	88	55	85	64	66
#	16	47	108	11	42
# /count	2.0	2.4	3.2	0.3	1.0
# /100 km	0.1	3	2	0.2	0.5

^a The following localities were included in the analyses : Assiniboia, Bethune, Biggar, Coronach, Craven, Crooked Lake, Duval, Duperow, Eastend, Elbow, Endeavour, Estevan, Fenton, Ft. QuAppelle, Feudal, Gardiner Dam, Glamis, Govenlock, Grasslands, Harris, Herbert, Indian Head, Kindersley, Kutawagan, Last Mountain, Leader, Luseland, Matador, Moose Jaw, Nicolla Flats, Pike Lake, Qu'Appelle Valley, Ravenscraig, Raymore, Regina, Saltcoats, Saskatoon, Saskatchewan Landing, Scott, Shamrock, Skull Creek, Spring Valley, Swift Current, St. Victor, Weyburn, White Bear, Wolseley, Wynyard.

Mixed prairie ecosystem, as well as a few sites within the Aspen Parkland - Raymore, Kutawagan etc. - surveyed by Wayne (Table 1). The localities are shown on the maps that accompany the annual CMC results. I selected five years spaced roughly evenly over the decades, beginning with a couple of surveys near the beginning, one a decade later, in the mid 80s and 90s, and ending with the last survey in 2001. I calculated frequency of occurrence based on all evidence (e.g. tracks and actual sightings). Abundance indices were calculated from actual sightings only, divided by the number of kilometres observers traveled by vehicle. (This is the simplest method, but future researchers could also factor in the number of km surveyed by foot).

Results

The statistic of two coyotes per 100 km in 2001 represents the efforts of many observers from 41 localities, who traveled 8512 km and saw 153 coyotes. The rate of encounter is similar to 1994, but three or four times higher than in the 1970s. Evidently coyotes have increased in abundance in the last decade.

In the same localities, observers recorded only 7 foxes in 2001, 0.08 per 100 km, or one for every 1250 km surveyed, about five times lower than the rate in 1974. Thus the trend in abundance of foxes is inversely proportional to the number of coyotes.

Wayne often commented on the scarcity of jackrabbits, especially during the last decade of surveys. In 2001, only 42 jackrabbits were seen on all 41 counts; one per 200 km. In my youth, it would have been easy to flush that many from a willow-fringed slough! The density of jackrabbits doesn't show any clear trends across the decades; despite the reduction in foxes, their populations have not rebounded. This suggests that foxes are not responsible for keeping jackrabbit populations at low levels, or perhaps they are caught in a "predator sink" whereby the prey are unable to rise above normal predation pressures and other mortality factors.

In addition to the abundance indices, I examined frequency of occurrence of the Coyote, Red Fox, and Sharp-tailed

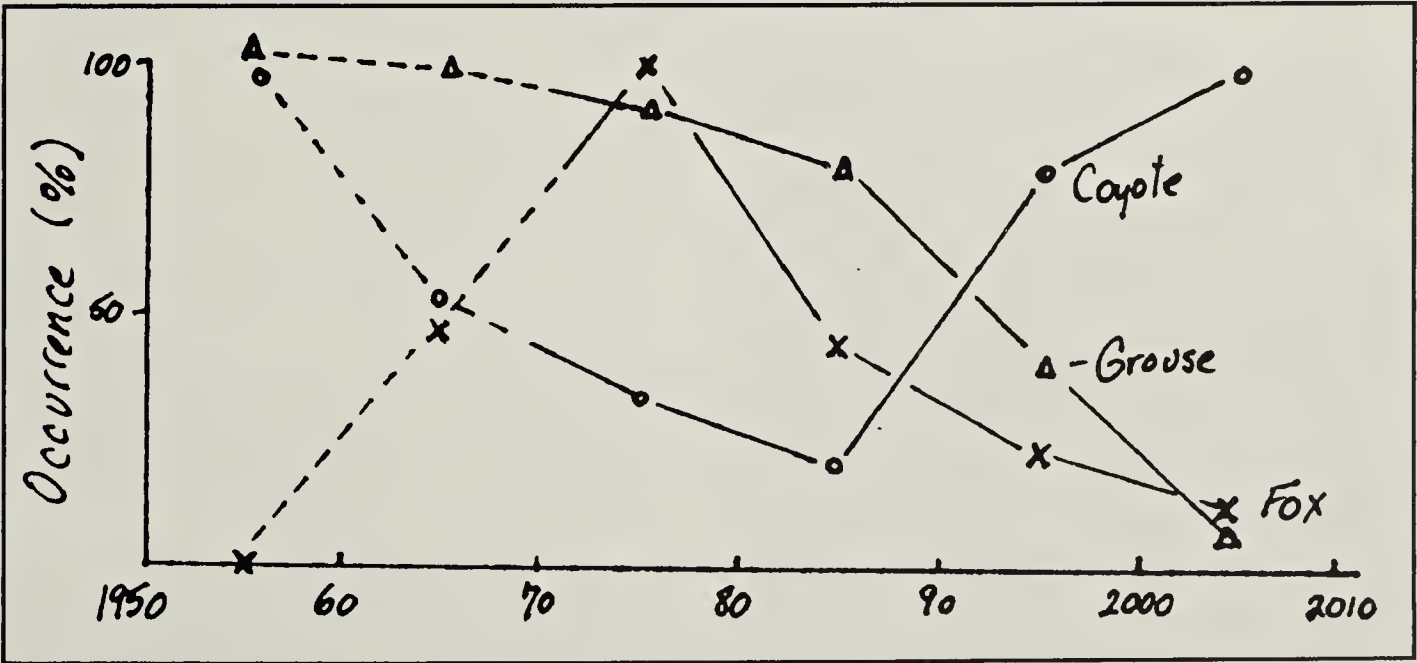


Figure 1. Occurrence by decade of Coyotes, Red Foxes and Sharp-tailed Grouse at Luseland, during the last half of the twentieth century. Based on Christmas counts (solid line) and local knowledge (dashed line).

Grouse in counts at one locality, Luseland, that I know intimately (Figure 1). Figure 1 illustrates the essential outline of what I believe to be one of the most important ecological phenomena to have impacted the Canadian prairies in the last half of the twentieth century.^{2,3} It shows a reversal in fortunes of the top predator and the long-term decline and near extirpation of a prey species, the Sharp-tailed Grouse. As with the jackrabbit, failure of the Sharp-tailed Grouse to recover may indicate a threshold effect where it is unable to rise above other limiting factors, including hunting pressure, predators and habitat change.

Discussion

Except for anecdotal accounts, the Red Fox invasion of the northern Great Plains was not quantitatively documented by science, and its consequences have only been recognized in retrospect.^{1,7,10,12} This exercise illustrates the basic outline of a major ecological phenomenon – the rise and fall of the Red Fox - that has occurred in the last half century. The data, collected by volunteer naturalists, support the hypothesis that there is an inverse relation between coyote and red fox populations. This has important implications for wildlife management.^{7,8,10}

This exercise is not meant to be definitive, only to show its potential. Much more can be done to improve the analyses. The exercise reveals the potential of naturalists to collect invaluable data on wildlife populations while enjoying a Christmas tradition. Table 1 represents only a small portion of this collective effort. Not only is it rich in biological meaning, but it also represents a wealth of goodwill and energy expenditure (in fat and fossil fuel) by a dedicated cadre of skilled

naturalists. The 2001 count represented over 14,000 km driven, 800 km walked, and 1065 hours of field time by 912 observers. This effort is worth at least \$26,000 (assuming 35 cents/ km and roughly 2700 person hours at minimum wage). Consider too the many hours that Wayne invested in tallying the results, and one can appreciate that each statistic is a priceless artifact.

This exercise represents a step toward implementing an integrative, ecosystem-based monitoring program. As a baseline, beginning in this millennium (2001), the equation for the mixed-grass prairie ecosystem would include Coyotes = 2, Red Foxes = .08 and Jackrabbits = .5, over a common denominator of 100 km. Obviously it can be improved by including other key species, standardizing survey procedures and selecting localities with a long history of counts. In the long run, the index could prove useful in testing hypotheses, gauging the impacts of government policies, and setting goals. Only then might we be able to answer Nora Stewart's prescient question, "What is the balancing effect of the coyote on the red fox population?"¹² As Stan Rowe advised "Endangered organisms *per se* cannot be preserved. Ecosystems of which organisms are interesting ingredients can, however, be preserved - as long as the Ecosphere of which they are parts continues to function in the old natural and healthy way. ... Unless natural ecological systems are preserved, the native flora and fauna will not be preserved."⁹

Finally, this exercise draws attention to one of the most important ecological phenomena to have affected the prairies in the last half of the twentieth century. My children's generation does

not comprehend that the occurrence of the Red Fox has changed in the prairie ecosystem in recent times, ⁷ and that what they are experiencing is a residual effect of a cause that began long before they were born. This exercise, therefore, addresses Nature Saskatchewan's strategic plan of action, i.e. "to promote a greater understanding and appreciation of our natural heritage and the ecological processes around us", and specifically, to promote awareness that the Red Fox, as an invasive species, has the potential to cause widespread ecological damage on the prairies.

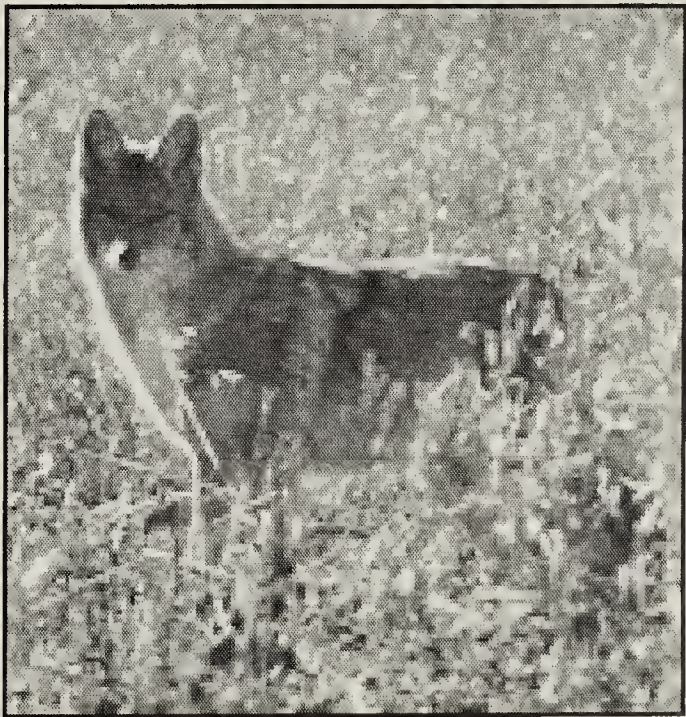
Conclusion

The rise of the Red Fox, five decades ago, was due to the creation of a vacant niche, brought about, ultimately, by the snowmobile revolution and decimation of the apex predator, the Coyote. The fall of the Red Fox, over the past two decades, is due to the rise of the coyote population, brought about by a combination of socio-economic circumstances (rural depopulation, fewer snowmobiles), environmental factors (climate warming and less snow), changing ethics and stiffer penalties for wildlife infractions. Still the coyote is subject to much prejudice, and given deeper snow cover and higher fur prices as occurred in the winter of 2004-2005, the trend in its population, and conversely, the fox's, can be reversed.

Dedicated to the memory of Wayne C. Harris (1951 - 2002) and J. Stan Rowe (1919 - 2004).

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Coyote J. K. Finley

CHECKLIST OF SASKATCHEWAN MOTHS: PART 16 - GEOMETRIDS (2), ENNOMINAE (2).

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This is a continuation of the list of Saskatchewan geometrid moths in the subfamily Ennominae. The first geometrid article was published in *Blue Jay*, volume 64, number 2.

Unless otherwise indicated, all the species are represented in the Royal Saskatchewan Museum collection in Regina. The species are arranged according to the website of Jim Troubridge and Don Lafontaine, *The Moths of Canada*,⁸ with updates to 2006 provided to the author by Greg Pohl. This website also has colour photographs of the moths. McGuffin's well-illustrated *Guide to Geometridae of Canada* covers the portion of the Ennominae subfamily in this list.^{3,4,5} This reference is the source of much of the information presented here but the preferred food plants listed are primarily based on Prentice.⁶ The common names that are used are mostly according to R. J. L. Jones and C. V. Covell, Jr. Recent scientific name changes are according to M. J. Scoble.^{1,2,7}

In this article, the size and early and late dates of Saskatchewan specimens are given. Some of the recorded food plants are mentioned. Abbreviations: s=south, n=north w=west, and e=east, CNC= Canadian National Collection, in Ottawa.

Subfamily ENNOMINAE

This is the largest subfamily of geometrid moths in Canada. It contains our largest geometrid moths (up to 48 mm in wingspan) as well as medium-sized ones. The males usually have a blister-like structure at the base of the fore-wings between the veins. In a few species the females are wingless, or have greatly reduced wings.

Transcanada Orthofidonia
Orthofidonia exornata (Walker) - Greenwater Provincial Park and Kinistino area. (27 mm) (June 11) Reported on bush cranberry.

Yellow-veined Orthofidonia
Orthofidonia flavivenata (Hulst) - Bainbridge (n. of Hudson Bay). Formerly reported west to Cochrane, Ontario by McGuffin.³ One Manitoba specimen is in the Wallis collection, taken at Manitoba Cultural College, Winnipeg. June 15, 1921, by N. Pankiw. (28-33 mm) (May 17).

Large Sulphur Hesperumia
sulphuraria Pack. - S. Sask., n. to Key Lake. (28-33 mm) (June 28-Aug. 14) Reported to be a general feeder.

Cranberry Spanworm Ematurga
amitaria (Gn.) - S. Sask., n. to Love and Harlan. (24-27 mm) (June 2- July 1)

Reported on bog cranberry, meadowsweet and raspberry.

Oak Carpet *Stenoporpia polygrammaria* (Pack.) - Spy Hill, Tantallon and Stockholm. (23-29 mm) (July 5- 13) Reported on oak.

Four-barred Gray *Aethalura intertexta* (Walker) - Central Sask., n. to Buffalo Narrows, s. to Douglas Park and Harlan. (22-23 mm) (June 6-26) Reported on alder and birch.

Large Purplish Gray *Iridopsis vellivolata* (Hulst) (= *Anacamptodes vellivolata*) - Reported from central-eastern Sask., w. to Prince Albert; also Roche Percee area. (30-32 mm) Reported on jack pine.

Pale-winged Gray *Iridopsis ephyraria* (Walker) (= *Anacamptodes ephyraria*) - S. Sask., n. to Deschambault Lake. (29 mm) (July 20-26) Reported on birch, alder, willow and maple.

Bent-lined Gray *Iridopsis larvaria* (Gn.) - S. Sask., n. to Otter Rapids- (28-31 mm) (May 31- Aug. 21) Reported on birch, alder, willow and aspen.

Cranberry Spanworm *Anavitrinella pampinaria* (Gn.) - S. Sask., n. to Narrow Hills Provincial Park, Waskesiu area and Harlan area. (27-31 mm) (June 1- July 30) Reported on bush cranberry, buffaloberry, birch and willow.

Twilight Carpet *Ectropis crepuscularia* (D. & S.) - S. Sask. n. to Otter Rapids- (31-36 mm) (May 14- July 1) Reported on fir, tamarack, spruce, willow and many other trees and shrubs.

Speckled Carpet *Protoboarmia procelaria* (Gn.) - Central Sask., n. to

Sturgeon Landing, Waskesiu area and Meadow Lake Provincial Park area, s. to Roche Percee, Fort Qu'Appelle and Outlook. Also in Cypress Hills. (31-33 mm) (May 29-July 7) Reported on fir, spruce, tamarack, pine, birch and aspen.

Pine Powder Moth *Eufidonia convergaria* (Walker) - N. Sask., s. to Greenbush, Prince Albert and Meadow Lake Provincial Park. (20-25 mm) (May 29-July 15) Reported on pine.

Powder Moth *Eufidonia notataria* (Walker) - Reported for Sask. by Troubridge and Lafontaine.⁸ Reported on spruce, fir and tamarack.

Sharp-lined Powder Moth *Eufidonia discospilata* (Walker) - N. Sask., s. to Crooked Lake, Prince Albert and Harlan area. (20-23 mm) (June 11-July 12) Reported on bog myrtle, rosemary, Labrador tea, cranberry and birch.

Canadian Melanolophia *Melanolophia canadaria* (Gn.) - S. Sask., n. to Beaver Lake area and Turtle Lake area. (32-33 mm) (May 17- July 1) Reported on birch and willow.

Signate Melanolophia *Melanolophia signataria* (Walker) - S. e. Sask., n. to Bainbridge and Candle Lake. (31-35 mm) (May 24-June 21) Reported on birch and fir.

Pepper and Salt Moth *Biston betularia cognataria* (Gn.) - S. Sask., n. to Sturgeon Landing, Turtle Lake and Onion Lake. (42-52 mm) (June 22-July 27) Reported on willow, birch, alder, tamarack and aspen.

The Bear *Lycia ursaria* (Walker) - Central Sask, n. to Red Earth, Prince Albert area and Meadow Lake Provincial Park area; s. to Regina and

Moose Jaw. (38-43 mm - males) (April 16- May 29) Reported on birch, willow and alder.



The Bear

RSM collection, Keith Roney

Rachel's Moth *Lycia rachelae* (Hulst) - S. Sask., n. to Waskesiu area and Meadow Lake area. (26-36 mm - males) (April 6- June 4) Reported on willow, buffaloberry and birch.

One-spotted Variant *Hypagyrtis unipunctata* (Haw.) - S. Sask., n. to Gronlid area. (28-35 mm) (June 2-July 18) Reported on rose, Saskatoon, willow and chokecherry.

Pine Measuring Worm Moth *Hypagyrtis piniata* (Pack.) - Central Sask., n. to Nipawin area and Meadow Lake area; s. to Kamsack area and Saint Louis area. Reported on fir, spruce, tamarack and pine.

Half Wing (Spiny Looper) *Phigalea titea* (Cram.) - Lestock, Fort Qu'Appelle, Regina, Moose Jaw and Buffalo Pound Provincial Park. (34-40 mm - males) (April 21- May 2) Reported on elm, birch, oak and willow.

Spring Cankerworm *Paleacrita vernata* (Peck) - S. Sask., n. to Prince Albert area. (22-28 mm - males) (April 4- May 30) Reported on elm, birch and chokecherry.

Lime-tree Looper *Erannis tiliaria* (Harr.) - S. Sask., n. to Red Earth, Weldon area and Lloydminster area. (37-45 mm - males) (Sept. 2- Oct. 15) Reported on elm, birch and aspen.

Mottled Umber *Erannis vancouverensis* Hulst - Reported from Macklin by McGuffin.

Clouded View *Lomographa semiclarata* (Walker) - S. Sask., n. to Greenbush, Love and Ile a la Crosse. (18-22 mm) (May 8- June 18) Reported on cherry, hawthorn and mountain ash.

White Spring Moth *Lomographa vestaliata* (Gn.) - Gainsborough, Roche Percee, Maryfield and Tantallon. (16-19 mm) (June 2-14) Reported on cherry, hawthorn and mountain ash.

Northern Wave *Cabera exanthemata bryantaria* (Taylor) - Patterson Lake (n. e. Sask.), Hunt Falls and Cypress Hills. (26-30 mm) (June 14-30) Reported on willow.

Yellow-dusted Cream Moth *Cabera erythemaria* Gn. - Throughout Sask. (21-28 mm) (June 1- Aug. 20) Reported on willow.

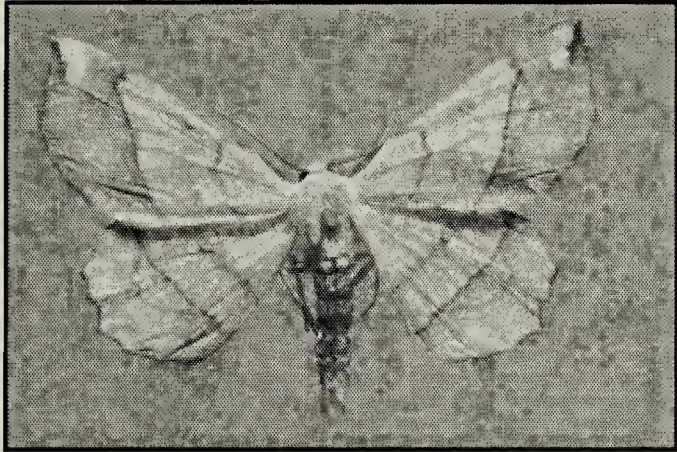
The Vestal *Cabera variolaria* Gn. - Throughout Sask. (21-27 mm) (May 31- Sept. 13) Reported on willow and aspen.

Dark Cabera *Cabera borealis* (Hulst) - Patterson Lake (n. e. Sask.), Hunt Falls and Big River. (22-24 mm) (June 13-30) Reported on willow, aspen and birch.

Obtuse Thorn *Euchlaena obtusaria* (Hbn.) - S. Sask., n. to Preeceville, Tisdale and Loon Lake. (35-40 mm) (May 21- July 13) Reported on touch-me-not.

Least-marked Thorn *Euchlaena irraria* (B. & McD.) - Crooked Lake, Fort Qu'Appelle, St. Victor, Buffalo Pound Provincial Park and Outlook. (38-41 mm) (June 2- July 2) Reported on dogwood, meadowsweet, birch, aspen and oak.

Pale-tipped Thorn *Euchlaena madusaria* (Wlk.) - Throughout Sask. (30-38 mm) (June 19-July 24) Reported on pine, buffaloberry and blueberry.



Pale-tipped Thorn
RSM collection, Keith Roney

Johnson's Thorn *Euchlaena johnsonaria* (Fitch) - S. Sask., n. to Greenbush, Fort a la Corne area and Loon Lake. (32-36 mm) (June 15-Aug. 2) Reported on dogwood, meadowsweet, elm, birch, ash and chokecherry.

Variable Thorn *Euchlaena tigrinaria* (Gn.) - S. Sask., n. to Cumberland House and La Ronge. (36-38 mm) (June 16- Aug. 9) Reported on buffaloberry, pine, birch, willow and aspen.

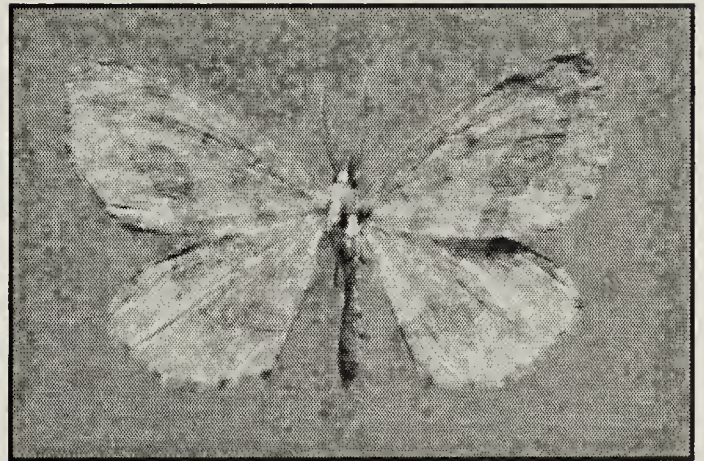
Scalloped Thorn *Euchlaena effecta* (Walker) - Tantallon. (36-40 mm) (June 25-July 3) Reported on dogwood, meadowsweet, blueberry, ash and chokecherry.

Alberta Thorn *Euchlaena marginaria* (Minot) - S. Sask., n. to

Greenbush and Ile a la Crosse- (35-40 mm) (May 15- June 21) Reported on birch, elm, willow, meadowsweet and dogwood.

Crocus Geometer *Xanthotype sospeta* (Drury) - S. Sask, n. to Cumberland House and Otter Rapids. (35-45 mm) (June 21- July 11) Reported on meadowsweet, willow and blueberry.

False Crocus Geometer *Xanthotype urticaria* (Swett.) - S. Sask., n. to Deschambault Lake and Meadow Lake Provincial Park. (30- 35 mm) (June 21-July 10) Reported on meadowsweet, goldenrod, rose and currant.



False Crocus Geometer
RSM collection, Keith Roney

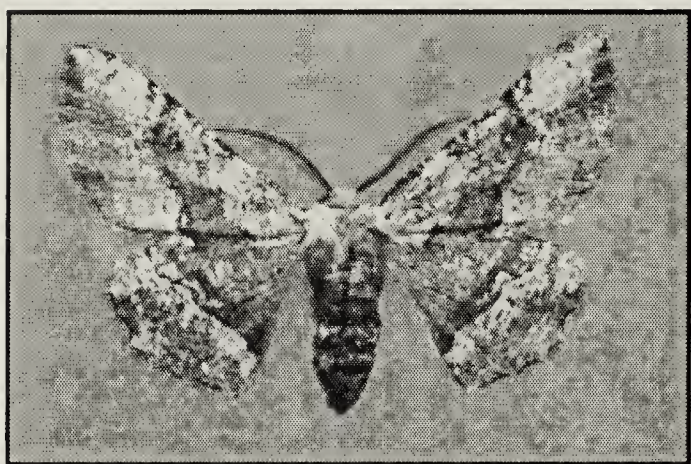
Prairie Aspitates *Aspitates aberrata* (Hy. Edw.) - S. Sask., n. to Kamsack, Fulda and Battleford. (24-35 mm) (May 16- July 24) On dry prairie.

Bog Aspitates *Aspitates taylori* (Butl.) - Hasbala Lake, Patterson Lake (n.e. Sask.), junction of Hwy 155 and Hwy 908, and Salt Creek (n. of Flotten Lake)- (27-33 mm) (June 14-July 2) In cranberry bogs.

Honest Pero *Pero honestaria* (Walker) - S. Sask., n. to Shoal Lake and Onion Lake. (33-39 mm) (May 29-July 23) Reported on cherry.

Morrison's Pero *Pero morrisonaria* (Hy. Edw.) - S. Sask., n. to Sturgeon Landing and La Ronge. (32-40 mm) (May 27- Aug. 16) Reported on fir, spruce, willow, tamarack, birch, meadowsweet and buffaloberry.

Oak Beauty *Phaeoura quernaria* (Sm.) (= *Nacrophora quernaria*) - Broadview, Goodeve, Punnichy and Birch Hills area. (40-45 mm) (June 25- July 11) Reported on birch, willow, oak and poplar.



Oak Beauty

RSM collection, Keith Roney

Hardwick's Geometer *Animomyia hardwicki* Rindge - 1 mile s. of Beverley collected by D. F. Hardwick, Aug. 22, 1968. This is so far the only known specimen of this species. It is in CNC.

Pale Emerald *Campaea perlata* (Gn.) - Throughout Sask., (32-45 mm) (June 11-Aug. 12) Reported on aspen, willow and birch.

Elm Spanworm *Ennomos subsignaria* (Hbn.) - Roche Percee and Fort Qu'Appelle. (32-35 mm) Reported on elm, birch, ash and aspen.

Notch Wing (Maple Spanworm) *Ennomos magnaria* Gn. - S. Sask., n. to Creighton and La Ronge area. (40-50 mm) (July 8-Oct. 2) Reported on birch, aspen and maple.

Handsome Geometer *Spodolepis substriataria* Hulst (= *Epirranthis substriataria*) - Bjorkdale and Harlan area. (43 mm) (May 7) Reported on pine, spruce and willow.

Northern Petrophora *Petrophora subaequaria* (Walker) - Reported for Sask. by Troubridge and Lafontaine.⁸ Formerly west to Red Rock Lake, Manitoba. Reported on bracken fern.

Dull Brown Tacparia *Tacparia deterrentata* (Gn.) - Tantallon and Sturgeon Landing (25 mm) (June 14) Reported on alder and larch.

Pale Homochlodes *Homochlodes fritillaria* (Gn.). - Bainbridge (n. of Hudson Bay) (26 mm) (May 17) Reported on ferns.

Brown-tipped Thorn *Selenia alciphearia* Walker. - N. Sask., s. to Moose Mountain Provincial Park and Moose Jaw. (38-47 mm) (May 2-July 8) Reported on willow, alder and birch.

Kent's Geometer *Selenia kentaria* (G. & R) - Katepwa, Fort Qu'Appelle, Indian Head and Big River. (42 mm) (June 1) Reported on Elm.

Yellow-lined Thorn *Metanema inatomaria* Gn. - Throughout Sask., (28-38 mm) (May 31- July 19) Reported on aspen, balsam poplar and willow.

Dark-banded Thorn *Metanema determinata* Walker - S. Sask, n. to Cumberland House and Buffalo Narrows. (25-30 mm) (May 14- July 19) Reported on willow, aspen and ash.

Warner's Thorn *Metarranthis warneri cappsaria* (Rup.) - Central Sask., n. to Kamsack and Harlan area; s. to Fort Qu'Appelle and Earl Grey. (30-32 mm)

(June 14-27) Reported on willow, cherry and dogwood.

Canadian Thorn *Metarranthis duaria* (Gn.) - S. Sask., n. to Sturgeon Landing, Otter Rapids and Clearwater River. (31-38 mm) (May 14- July 5) Reported on chokecherry, hawthorn, meadowsweet, Saskatoon and rose.

Common Metarranthis *Metarranthis mestusata* (Walker) (= *Metarranthis hypocharia* (H. -S.) - Moose Mountain Provincial Park, Tantallon, Kamsack, Greenwater Provincial Park and Nisbet Forest. (30-34 mm) (May 31- June 25) Reported on cherry and blueberry.

Barred Umber *Plagodis pulveraria* (L.) (= *Anagoga occiduaria* (Walker)) - Central Sask., n. to Bainbridge, Candle Lake, Eau Clair Lake and Harlan area; s. to Moose Mountain Provincial Park and Fort Qu'Appelle. (27-35 mm) (May 15- June 27) Reported on alder, birch, spruce and willow.

Straight-lined Plagodis *Plagodis phlogosaria* (Gn.) - S. Sask., n. to Greenwater Provincial Park, Candle Lake area and Primrose Lake area. (30-32 mm) (May 25- June 21) Reported on birch, alder and willow.

Hollow-spotted Plagodis *Plagodis alcoolaria* (Gn.) - Throughout Sask. (32 mm) (June 4- July 5) Reported on birch, alder and willow.

Lemon Plagodis *Plagodis serinaria* H.-S. - Reported for La Ronge area by McGuffin⁵ and Prentice.⁶

Alien Probole *Probole alienaria* H.-S. - Central Sask., n. to Sturgeon Landing; s. to Tantallon and Earl Gray. (23-28 mm) (June 11- July 14).

Sharp-toothed Thorn *Probole amicaria* (H.-S.) - Throughout Sask., (23-32 mm) (May 14- July 10) Reported on birch, alder and willow.

Chain-dotted Geometer *Cingilia catenaria* (Drury) - Somme, Bainbridge (n. of Hudson Bay), Red Earth and Sturgeon Landing. (33-42 mm) (Aug. 30- Sept. 8) Reported on spruce, fir, tamarack, birch, pine and aspen.



Chain-dotted Geometer
RSM collection, Keith Roney

False Hemlock Looper *Nepytia canosaria* (Walker) - Central Sask., n. to Cumberland House area and Nemeiben Lake; s. to Fort Qu'Appelle area. (28-30 mm) (Aug. 13-28) Reported on fir, spruce, tamarack and pine.

Hemlock Spanworm *Lambdina fiscellaria* (Gn.) - Central Sask., n. to Sturgeon Landing and La Ronge area; s. to Fort Qu'Appelle and Buffalo Pound Provincial Park; also at Wood Mountain Regional Park. (28-36 mm) (Aug. 26- Sept. 27) Reported on fir, spruce, tamarack, birch, pine and aspen.

Curve-lined Looper *Lambdina fervidaria athasaria* (Walker) - Tantallon. (32 mm) (June 14) Reported on maple and birch.

Straw Besma *Besma endropiaria* (G.&R) - N. Sask., s. to Candle Lake area. (31-33 mm) (July 4) Reported on birch.

Oak Besma *Besma quercivoraria* (Gn.) - N. Sask., s. to Moose Mountain Provincial Park and Harlan area. (31-34 mm) (May 31- July 8) Reported on birch and willow.

Canary Thorn *Neoterpes triangulifera* (Pack.) - Milliken Lake (on a rock outcrop) (specimen in CNC) Reported on gooseberry and currant.

Pink-bordered Yellow *Sicya macularia* (Harr.) - S. Sask., n. to Otter Rapids. (30-33 mm) (July 3- Aug. 17) Reported on aspen, willow and alder.

Sage-brush Girdle *Plataea trilinearia* (Pack.) - S.w. Sask., e. to Roche Percee; n. to Estevan, Buffalo Pound Provincial Park, Outlook and Tramping Lake Regional Park. (30-34 mm) (May 27- July 19) Flies among sagebrush.

Twin-spot Girdle *Caripeta divisata* Walker - Central Sask., n. to Montreal Lake area; s. to Weyburn area. (29-35 mm) (June 25- July 9) Reported on spruce, fir and tamarack.

Oblique Girdle *Caripeta angustiorata* Walker) - N. Sask., s. to Weyburn area. (30-36 mm) (June 24- July 17) Reported on pine and spruce.

Northern Pine Looper *Caripeta piniata* (Pack.) - Reported for Moosomin area and Regina area. Reported on pine and spruce.

October Thorn *Synaxis jubararia* (Hulst) - S. Sask., n. to Norquay, Saskatoon and Harlan area. (38-47 mm) (Aug. 4-Sept. 26) Reported on willow, alder, birch and aspen.

Oblique Thorn *Tetracis cachexiata* Gn. - S. Sask., n. to Ruby Lake and Saskatoon area. (35-45 mm) (May 29- July 7) Reported on alder, willow, birch and tamarack.

Yellow Slant-line *Tetracis croccalata* Gn. - S. Sask., n. to Cumberland House. and Narrow Hills Provincial Park. (35-41 mm) (May 31- July 18) Reported on willow and alder.

Large Maple Spanworm *Prochoerodes lineola* (Goeze) (= *P. transversata* (Drury)) - S. Sask., n. to Shoal Lake, Red Earth, Waskesiu area and Meadow Lake Provincial Park. (39-43 mm) (July 15- Sept. 4) Reported on aspen, fir, birch, willow, poplar and maple.

Variable Antepione *Antepione thisoaria* (Gn.) - Maryfield, Moose Mountain, Tantallon and Fort Qu'Appelle. (33-38 mm) (May 25- June 25) Reported on alder and maple.

Curve-toothed Geometer *Eutrapela clemataria* (J. E. Smith) - E. Sask., n. to Sturgeon Landing, w. to Turtleford area. (39-50 mm) (May 25- June 27) Reported on dogwood, cherry, willow and bog myrtle.

Confused Eusarca *Eusarca confusaria* Hbn. - Roche Percee and Crooked Lake. (34 mm) (June 26) Reported on aster, dandelion, goldenrod and clover.

Snowy Geometer *Eugonobapta nivosaria* (Gn.) - Fort Qu'Appelle. (27-29 mm) (July 3- 31) Reported on dogwood and chokecherry.

Bordered Thorn (Horned Spanworm) *Nematocampa resistaria* (H.-S.) (= *N. limbata* (Haw.)) - S. Sask., n. to Otter Rapids. (19-26 mm) (June

26-Aug. 20) Reported on fir, willow, spruce, birch and tamarack.

EXPECTED SPECIES

Small Purplish Gray *Iridopsis humaria* (Gn.) (=Anacamptodes humaria) - Eastern Canada, west to Fort McMurray, Alberta.

ACKNOWLEDGEMENTS

I thank Klaus Bolte of Ottawa for checking the identification of most of our Geometrid species. I also thank Greg Pohl of Edmonton for checking this manuscript and giving helpful suggestions.

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“The sight of a large and conspicuous plasmodium can sometimes excite people who are not familiar with myxomycetes [slime molds]. An unusually spectacular mass appearance of the plasmodia of *Fuligo septica* in a suburb of Dallas, Texas, even made the news nationwide in the United States in 1973. The plasmodia of *F. septica* are usually bright yellow and often spread over large areas. The sudden, unexplained appearance of these ‘pulsating yellow blobs’ in lawns and other similar situations caused a virtual panic among some of the local inhabitants. The blobs broke apart when blasted with water, but the pieces continued to crawl about and increase in size.”

Steven L. Stephenson and Henry Stempfen, 2000,
Myxomycetes, A Handbook of Slime Molds, p.67.

NOTES AND LETTERS

AMERICAN COOT CAUGHT ON BARBED WIRE



Entangled American Coot near Rosthern

Victor C. Friesen

On May 9, 2005, my wife, Dorothy, and I drove from Rosthern to Duck Lake via the 'scenic route,' a linkage of back roads west of Hwy 11, hoping to see more birds that way. Two miles north of Rosthern, a built-up municipal road leads directly through a small slough.

There, hanging head downwards from a barbed-wire fence within the water, was an American Coot. Its back feathers were twisted about and snagged tight on a barb of the first wire above the water's surface. 'The poor bird!' was my thought – 'What a way to die!'

I decided to record the circumstance on film. I had already taken one photograph when the coot began to move. It was not only still alive but energetically so, its former torpor

seemingly just exhaustion from previous struggles to break free.

Now I was obliged to free it, first returning home for some old slacks, sandals, stout gloves, two pairs of pliers and screwdriver to possibly loosen the barb, and also scissors and a canvas jacket. These last two items would prove to be the most useful.

At the slough, I approached the coot along the fence line, and it was ready for me. Standing mid-thigh in the icy water, I had to fend off the bird's attacks with the jacket. My thought was how assuredly, this coot, like all birds, evolved from some dinosaur ancestor, what with its outstretched neck and head swinging from one side of the fence to the other, above and below the wire, to get at me (shades of a scene

from the movie *Jurassic Park*). Herbert K. Job (cited in Pearson) notes that coots 'in the breeding season are said at times to make a rather too free use of their sharp beaks.'⁴ I could well believe it.

I gingerly reached out with the scissors and made two quick snips. The coot plumped into the water and immediately began swimming to the far side of the slough, 'bobbing its head with each swimming stroke,'¹ only now also turning its head backward to see whether I was in pursuit. At the water's edge, it walked up the shore and disappeared behind a clump of willows.

Coots frequently inhabit roadside sloughs with boundary fences. When taking wing, as reported by Al Hartley and Jim Hay, 'they have to run along the surface of the water for quite a distance.'² If they are swimming in the ditch between the road and the fence, and alarmed by a passing car, such flight could readily result in

entanglement. Yet, I have seen only this one coot snagged on barbed wire.

Addendum: While out driving in the Rosthern area several years ago, I saw a Short-eared Owl dangling from a fence. I assumed it had been shot and hung there by the shooter. This sighting occurred before I read an article referring to 'accidental entanglements of birds on barbed-wire fences.'³ There were 40 species involved, eight of them owls. I wish I had stopped to examine the owl.

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- Victor C. Friesen, P.O. Box 65, Rosthern, SK S0K 3R0



American Coots near Laura, SK in 2006

George Tosh

JUST AN ORDINARY SATURDAY AFTERNOON

On this cool and cloudy Saturday of the May long weekend, 2006, the Park Nature Centre in Prince Albert National Park was 'humming' with activity. In more ways than one, I was soon to find out.

About 3:00 PM, an hour before closing time, a hummingbird (Ruby-throated, the only kind we get here and a male as it turned out) was seen hovering below the peaked roof of the main exhibit hall. The bird seemed quite confused but somehow made its way out into the front entrance where it flew *everywhere* but out the door. It landed on the wing of the white pelican, perched on the back of the broad-winged hawk and clung to the nylon lines that held these birds aloft. It flew backwards, forwards, right side up and upside down. Sometimes it would perch on a ledge with its wings outstretched - obviously exhausted. I pointed out to visitors how vulnerable these birds are to literally running out of fuel and crashing for good, particularly when they have just completed their northerly migration. Periodically I asked visitors to clear the entrance way so the bird could fly through the open doorway. But it was pretty tough because new groups of people kept coming in and I could hardly blame them for being thrilled by this aeronautical display.

However, at four o'clock, closing time, everyone (but the hummingbird and I) had left the Nature Centre. I opened the doors and pried loose one of the windows. The bird just stayed put so I tried directing it towards the open door with a broom. The hummingbird just flew east and west instead of north. If I just left the bird there overnight, I mused, it might go into torpor, conserve its

meagre remaining resources and survive to the next day. Then what? I continued trying to guide it with the broom - and then - tragedy! The 'feathered helicopter' hit some cobwebs, got tangled and - PLOP - crashed head first onto a hard stool. It lay there with its heart pulsating rapidly. The web had basically strait jacketed the bird's torso, and web material was in its mouth and on its feet. I removed most of the cobwebs and carried it outside. I could see dishevelled feathers on the top of its head, the point of impact with the stool, and I suspected it had suffered some neurological damage. It lay still in my hand, breathing but making no attempt to fly off.

I didn't think it would survive and considered putting it under a bush, where when dead, it would provide nourishment to other, equally significant, life forms. That's nature's way. However, as I reflected that I now held in my palm a living being that had endured, among other things, an 800 km flight across the Gulf of Mexico just to get here, I felt that somehow this bird deserved a more respectful exit from this life - at least from me. I found a container, with a lid that could be left partially open, put in some paper towels and gently placed the bird on them. My intention was to leave it overnight, maybe put in some sugar water solution for it, and if it died, well, that's life.

As I was closing up, I heard a 'thump-thump' from the container. The hummingbird was propped up against one of the sides, its wings stretched out. Apparently it wanted to get out. I carried the bird outside in the container, fully opened the lid, and waited.

Nothing. Mr. Ruby-Throat remained still with his wings folded tightly. I gently picked up the bird, held it in my hand while gently stroking its back and in a blink of an eye - WHIRRRR - it was off. It alighted on a nearby tree branch, seemingly none the worse for the experience.

The sun came out as I gazed at him and I wondered what he was thinking, if hummingbirds can be said to think. Maybe he was wondering the same thing about me! Perhaps we were sharing a mutual reflection on mortality and the fragile nature of life. His close brush with death was but a temporary escape; it would find him again and relatively soon. I am no different. How many times had visible and invisible hands, often without my even realizing it, plucked me from the precipice of eternity? Yet I, too, perhaps before the

next sunrise, would 'meet my Maker'. In the meantime, the prism of life beckons us both, and our respective spectrums will disclose both the profound and the mundane. Mr. Ruby-Throat has to focus on establishing a territory, finding a mate, staying out of the clutches of predators, and – if he makes it that far – fueling up for the rigors of the fall migration. I, too, must bear the tangle of responsibilities, risks and opportunities that cloaks my future. But, for the moment, our paths had mingled, and his presence has been imprinted on my memory on this ordinary – but extraordinary – Saturday afternoon.

- Adam Pidwerbeski, Prince Albert National Park, P.O. Box 100, Waskesiu Lake, SK S0J 2Y0. E-mail: adam.pidwerbeski@pc.gc.ca



Ruby-throated Hummingbird

R. E. Gehlert

NEST BOX PROJECT AT MORSE, SK

In 2001, I had the luxury of a small class (5 students) in my grade 9 Science class at Morse School. A small number like this allows for some special projects to be tackled. Our goal that school year was to enhance the birding trail on the edge of the village of Morse. Toward that end, the class constructed 12 bluebird boxes and 4 American Kestrel boxes in the winter of 2001-2002.

Within a week of mounting the bluebird boxes on April 14, 2002 they were all occupied by tree swallows. These boxes have been occupied every spring by tree swallows.

The springs of 2002 and 2003 were a failure for the kestrel boxes. We saw no kestrels in the area in those years. On April 10, 2004, the larger of the four kestrel boxes was occupied by a



Morse School students, Clayton Weppeler and Brock Beach, put up one of the kestrel nest boxes the science class built.

Randy McCulloch

breeding pair of American Kestrels (see back cover photograph). This box was mounted 15 feet above the ground in a tree near the water at the old C.P.R. dam. Situated about ½ mile west of the school, on the north side of Morse, the dam and wetland cover approximately 4 acres.

On April 14, 2005, both kestrel boxes at the C.P.R. dam plus one of the houses mounted in town, were occupied by breeding pairs. (The other nest boxes were mounted 20 to 25 feet above the ground.) In 2006, on April 6, both nest boxes at the C.P.R. dam held breeding pairs.

Three of the kestrel boxes had the following dimensions: interior floor size— 9x9 inches, interior height of box—

18 inches, entrance hole diameter—3 inches. The fourth and largest kestrel box had interior floor size—11x11 inches, interior height—16 inches, entrance hole diameter—3 inches.

On reflection, the project was very rewarding for the class; the students were thrilled to finally see their kestrel boxes occupied. It is the hope that students and members of the tourism committee will continue to maintain and/or monitor boxes. Similar nest boxes were subsequently constructed and put up along the Eric Kurz memorial walking trail at Palliser Park near Riverhurst.

- *Randy McCulloch*, Box 630, Herbert, SK S0H 2A0

CRESTED SHIELD FERN (*Dryopteris cristata*) AT THE PAS, MB

I have been collecting and studying plants within a 100 mile radius of The Pas since 1945. It therefore proved to be a very pleasant surprise to discover a new plant, Crested Shield Fern, on 12 May 2003. It was taken on my farm seven miles east of The Pas on the east shore of Grace Lake (Regina Lake in early maps and a local name still).

The total area of the farm is 100 acres. It's an alluvial flood plain with not a single stone or pebble. The different slight elevations of land were likely produced by shallow creeks changing their directions in earlier times. With several dams on the Saskatchewan River, upstream, this no longer floods periodically as it did in the 1940s and 1950s, drowning out standing wheat to waist high.

Between the higher land and the lake there is a 'flood plain' that hasn't seen a flood since 1948.

A bit above this is a poplar-willow forest and the whole is fronted by a sedge meadow. There are large willow trees, and many large Trembling Aspen (*Populus tremuloides*) and Balsam Poplar (*Populus balsamifera*), have fallen and are decaying, providing good habitats for fungi and lichens.

It proved to be a great surprise to find a single clump of *Dryopteris cristata*. Only one frond was fertile. The plant was knee high. So far, it's a unique clump. No others have been found here to date although a considerable part of the heavily wooded area has not yet been explored. This collection at The

Pas is the most northerly collection made to date in Manitoba. Specimens are housed in the herbarium at the University of Winnipeg and in my personal collection.

Acknowledgements

I am indebted to Diana Robson at the Manitoba Museum in Winnipeg and Richard Staniforth at the University of Winnipeg for confirming my identification and that The Pas is at this species' most northern collection point to date.

- *Walter Krivda*, P.O. Box 864, The Pas, MB R9A 1K5

Editor's Note:

There have been collections of Crested Shield Fern elsewhere in Canada from locations farther north than The Pas (53° 50' latitude). In Saskatchewan, these locations include (1) Meridian Creek ne of Amisk Lake, near Creighton & Flin Flon, at about lat. 54° 30' N (1953, *J.H. Hudson #1414*); (2) Little Deer River near Southend, at lat. 56° 20' N (1982, *J.H. Hudson #4360*); and (3) Hutchings Lake, at lat. 55° 52'N (1990, *D. Robson #40*).

UNUSUAL JUNCO AT FEEDER

During the first week of April, 2006, a large number of Dark-eyed Juncos visited our feeder. This population of migrants exhibited considerable color variation, including 'slate-colored' and 'Oregon' forms. On the morning of April 4, a flock of 20 or more juncos was feeding on sunflower and canola seeds beside the feeder. One individual

attracted immediate attention. This bird was clearly a junco, as evidenced by its coloration and behavior, but with large white cheek patches. This bird remained in the yard for several days and was photographed on April 6.

- *Harold Fisher*, R.R.4, Site 1, Box 231, Prince Albert, SK S6V 5R2



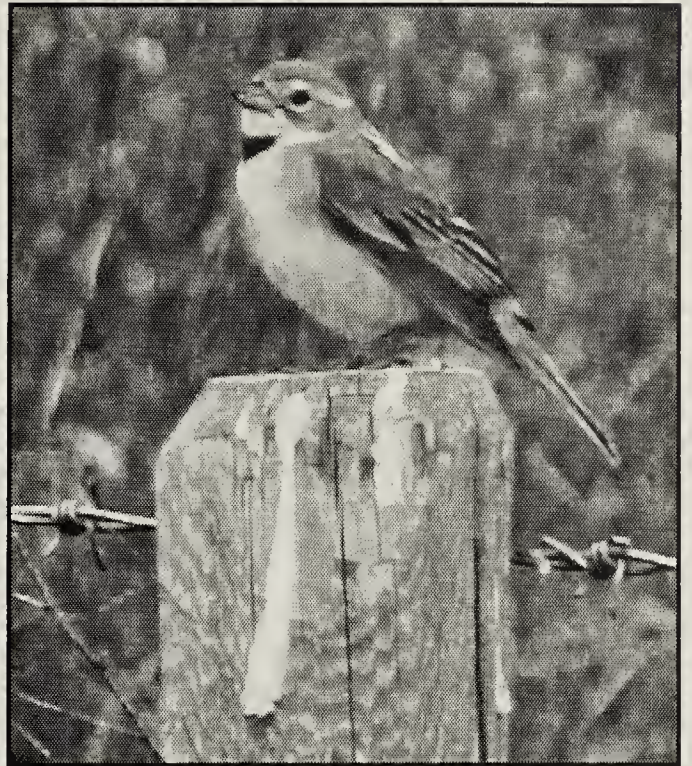
Unusual junco at Prince Albert

Harold Fisher

DICKCISSEL AT MOSSBANK, SK

On June 20, I drove out west past Singbiel's slough, about ten miles N W of Mossbank. I had the window down in my car, and I heard a bird song that I had never heard before. I backed up and there on a fencepost next to a very thick alfalfa field was a Dickcissel. I went back quite a few times to see if the bird was still there and in fact there were two males. I didn't see any females, or didn't notice them, because they look like female House Sparrows.

- Donald Smith, Box 202, Mossbank, SK. E-mail: donaldsmith@sasktel.net



Dickcissel near Mossbank

Marlene Hart



Dickcissel singing from a wire near Estevan, on 27 June 2006. A nest with one young and a cowbird egg was found in the same area.

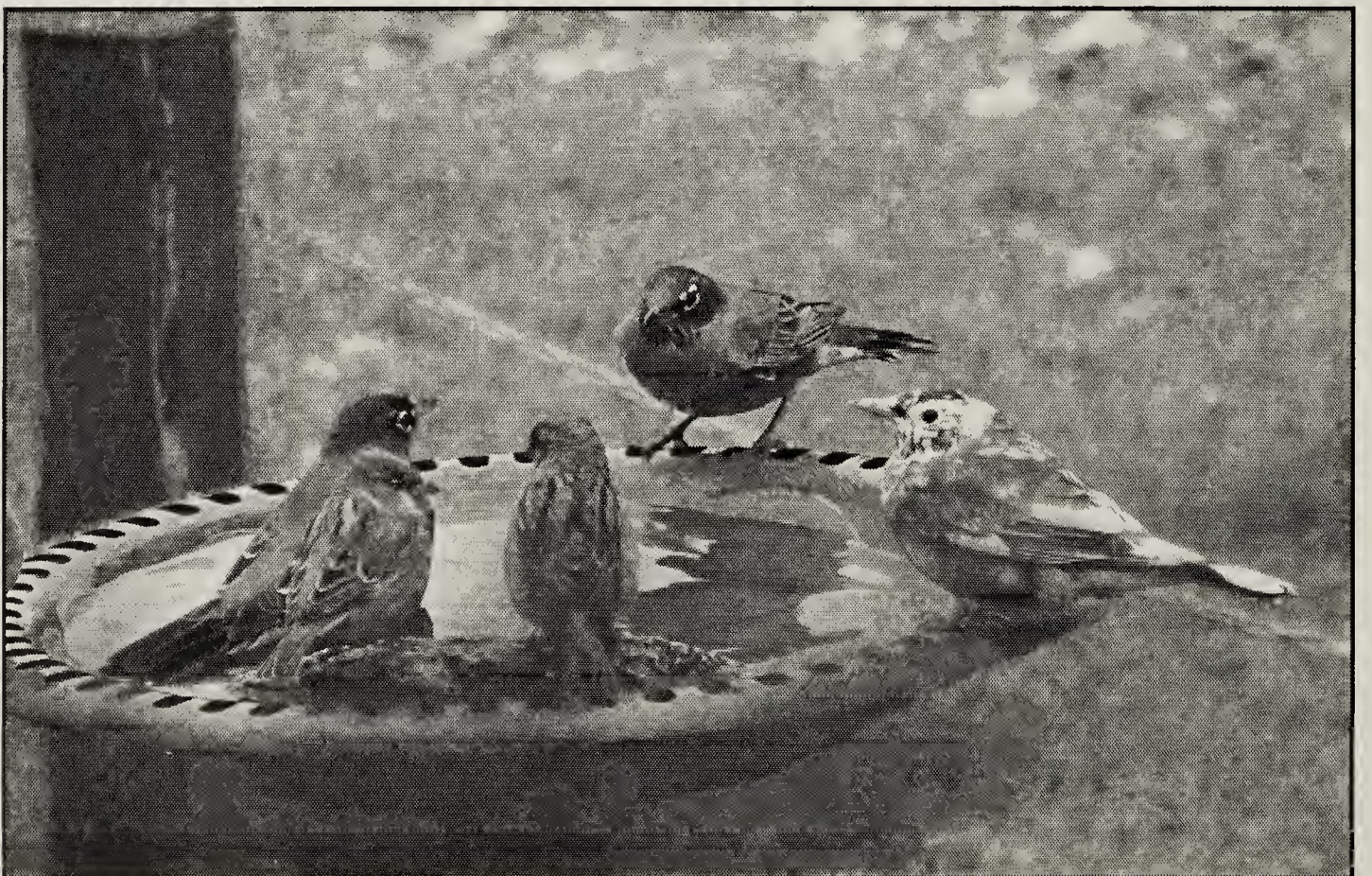
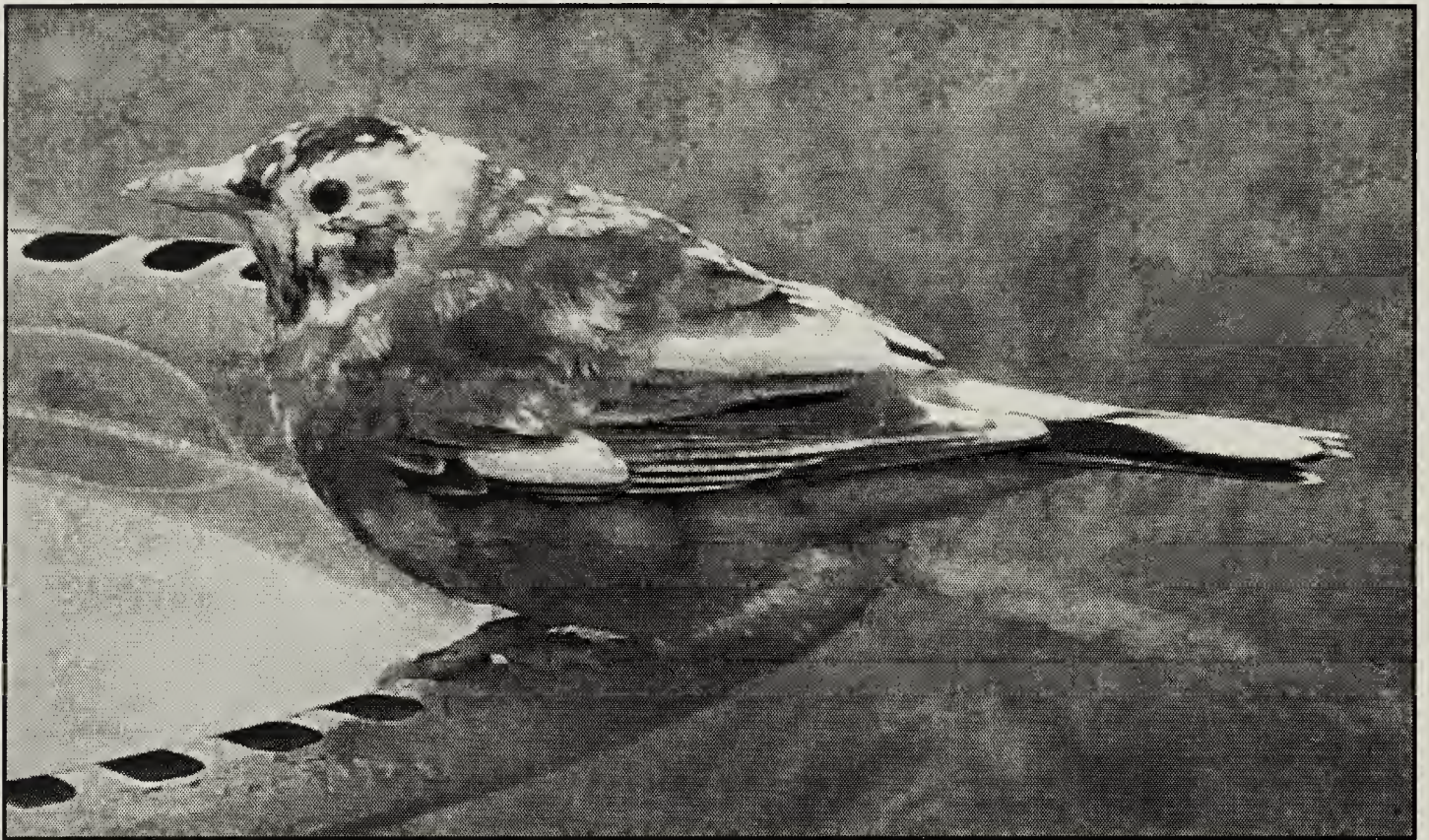
Philip S. Taylor

ALBINO ROBIN

This partial albino American Robin visited my bird bath in October 2005. On the morning of October 3, when I took these photos, the bath was frozen so I removed the ice and filled the bath with hot water. At noon, I noticed that the bath was drawing quite a crowd: sparrows, finches and robins. Then I

noticed this oddball. It was the first time I had seen this bird, so I don't think it was a resident. I haven't seen it since that day, nor has anyone else I have talked to.

- *Gordon H. Dash*, Box 563, Regina Beach, SK. E-mail: g.dash@sasktel.net



GARDEN COMPANION

Sally Sparrow is a cheerful cheeper
she eats seeds from the Golden Thread Creeper,
she gobbles spiders from the Columbine,
green aphids from the Honeysuckle Vine,
fat white worms from the yellow Twinkle Phlox,
hard beetles from the blue Forget-me-nots.
Sally is happy with such a diet.
I have no present plans to try it.

- Jean MacKenzie, *The Exhilaration of Flowers*, 2002

WINDOWSILL DRAMA

Going to the bedroom window
to check on the weather eastwards
I discovered two bustling wasps
entwined in the gauzy spider web
or so I thought until one effortlessly
buzzed away off through the web
snapping threads as it flew while
the other wasp stood on the sill
nibbling steadily on the abdomen
of a dismembered damselfly whose
shining wings hung suspended above...
the wasps were robbing the spider's larder
another example of kleptoparasitism
stealing, with impunity, another's prey
desperately foraging to feed, I supposed
their August hatchlings in some nearby nest.
Thirty minutes later I felt a twinge of regret
when I spied my diligent wife outside tidily
sweeping spider webs off that windowsill.

- Bob Nero

CLOUDSCAPES

A sky full of clouds,
a sky full of dreams,
blazoned with crystallized high *cirrus* flares;
diffuse filmy wisps
sweep limitless space—
a fibrous sky streaked with tenuous trails.

A sky full of clouds,
a sky full of dreams,
mute *alto* waves in a motionless sea
are backdrop for gulls,
white, mewing, and flung
against the gray lift of mackerel skies.

A sky full of clouds,
a sky full of dreams,
cumulus masses of tow or of wool,
rough shorn they slip by
all carded by wind—
a swift sheperding, a fleecy-soft flow.

A sky full of clouds,
a sky full of dreams,
mushrooming battleships, summits bulged up,
one turreted tight
congestus display—
cream-coloured, blue dappled castles appear.

A saunterer's course
through remnants of cloud,
gorgeous in sunset, a western collage,
yield roadways of bronze,
magenta and gold—
a sky full of clouds, a sky full of dreams.

- Victor C. Friesen

GEESE IN AUTUMN

A gibbous moon, in pastel orange-yellow,
Hangs low and smudged within the harvest dust
Upon the autumn skyline. Stubble fields,
A-hum with combines threshing, are tawny gray.
The far machines, relentless and slow-moving—
I see each duly aureoled in its
Own (unreflected) light, a moted glow
That signals work undone: a thicker haze
Accumulates, ascends into the cool
Night air.

Geese, honking softly, wings a-thrust,
Sweep overhead in short diagonals,
Unisonant, resistless in their going.
Soon distant at the dim outskirts of sky,
They drift in silhouetted chains across
The dingy orange moon; break free;
And, unrestrained and silent, sail into
The coming night and to tomorrow's dawn.

- Victor C. Friesen



Semi-palmated Plover about 60 km NW of The Pas, MB on 20 August 2006.

David Raitt

*Harvest visitor near Tessier, 30 August
George Tosh*



AUGUST BOON

Bits of tan and rose fluff,
like pills plucked off
colorful wool sweaters,
appear unexpectedly
littering lawn-chairs.
Sprinkled on the grass
beneath the oak trees,
furry blooms bursting forth
from oak leaves inspired
by dancing gall-flies;
their larvae turning
within exotic galls
in an underleaf world
send down this gay confetti—
a celebration of summer.

- Bob Nero

MYSTERY PHOTO

SEPTEMBER 2006 MYSTERY PHOTO



What do the two long, upright objects have in common?

ANSWER TO THE JUNE 2006 MYSTERY PHOTO



The unusual objects featured in the June 2006 mystery photo are indeed associated with crayfish, as suggested in the photo caption. These discoid gastroliths are calcareous nodules found inside the stomachs of crustaceans such as lobsters and crayfish. It is generally considered that the function of these “stomach stones” is to provide a readily available source of minerals (primarily calcium) to facilitate rapid hardening of the new exoskeleton (shell) following the molt. Prior to ecdysis (molting), minerals are extracted from the old shell and are concentrated into gastroliths inside the stomach. During molting, the gastroliths are dissolved by the digestive fluids, and the minerals that are released are subsequently redistributed to form the new exoskeleton. Additional minerals may also be taken up from water; however, because freshwater environments are

often low in mineral content, the process of gastrolith formation allows the crayfish to reduce the loss of minerals caused by ecdysis.

Because gastroliths are made up of minerals, they are fairly resistant to weathering or mechanical breakdown. The size of the gastroliths is correlated with the size of the crayfish; larger individuals tend to have larger gastroliths. Moreover, because the disks are formed in pairs, they can be used to estimate the number of crayfish found in the stomach contents of predators. For example, in a research program initiated by Christopher Somers of the University of Regina, he and I have been investigating the diets of Double-crested Cormorants and American White Pelicans in southern Saskatchewan. We frequently find crayfish gastroliths in the stomach contents of juveniles of these two species; in some cases, the gastroliths provide the only evidence that crayfish have been consumed. Last Mountain Lake, where the mystery photo was taken, is one of our most important study areas, and crayfish comprise a substantial proportion of the diets of these two fish-eating birds at this site. The only crayfish native to Saskatchewan is *Orconectes virilis*, the northern or virile crayfish.

-Victoria Kjoss, Qu'Appelle, SK



“In winter, the ruffed grouse grows tiny, horny fringes on its toes that function as snowshoes to spread the bird’s weight out over the snow and prevent it from sinking.”

Scott Weidensaul, *The Birder’s Miscellany*, p.12

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